4350

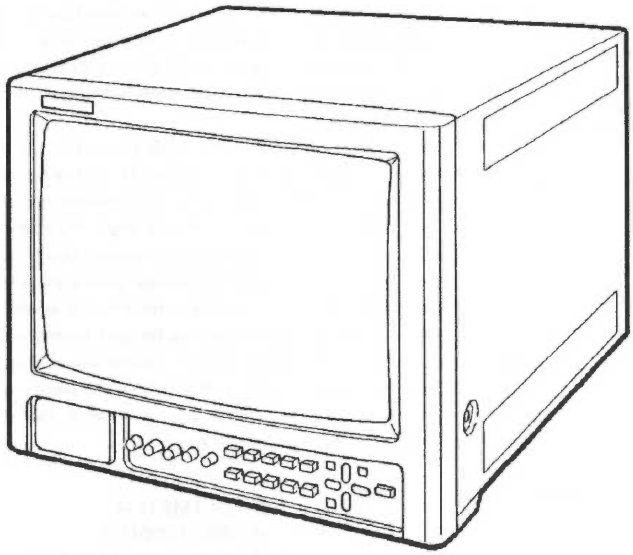
JVC

SERVICE MANUAL

COLOR VIDEO MONITOR

BM-H1300SU

BASIC CHASSIS
BM



CONTENTS

SPECIFICATIONS

Item	Content	Item	Content
Color system	NTSC 3.58MHz,NTSC 4.43MHz,PAL	Y,R-Y,B-Y component	RGB/COMPO (1 line:common with analog RGB)
Picture tube	13" (33cm) measured diagonally,90° deflection, in-line gun,dot pitch of 0.28 mm	External sync inputs	SYNC(1 line),BNC×2 (with 1 bridge-connected output)
Screen size (W×H)	11-1/6"×5-5/16"(280×210mm)	Audio inputs	AUDIO A,B,RGB/COMPO(3 lines),RCA×2 each (with 1 bridge-connected output)
H.resolution	750 or more TV line		
color temperature	D-6500K;x=0.313,y=0.329 D-9300K;x=0.283,y=0.297 (selectable)	Audio power output	0.8W
Video inputs		Operation temperature	0-40°C (20-80% RH)
Composite video	INPUT A,B(2lines),BNC×2each (with 1 bridge-connected output) Termination switches provided	Power requirements	120V AC,50/60Hz
Y/C (1line)	DIN(4-pin)×2 (with 1 bridge-connected output) Termination switches provided	Power consumption	0.6A maximum
Analog RGB	RGB/COMPO (1 line:common with Y,R-Y,B-Y),BNC×6 (with 3 bridge-connected outputs) Termination switches provided	dimension (W×H×D)	13-5/8"×13-1/8"×16-1/4" (346×332×410mm)
		Mass	35.6lbs (16.2kg)

Design & specification subject to change without notice.

No.50934
Jan.1995

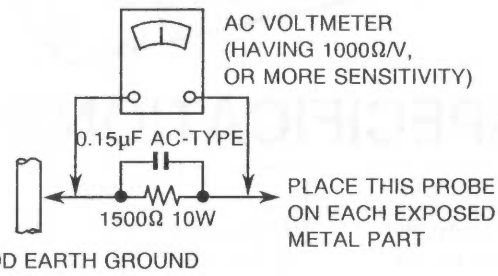
SAFETY PRECAUTIONS

1. The design of this product contains special hardware, many circuits and components specially for safety purposes. For continued protection,no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Service should be performed by qualified personnel only.
2. Alterations of the design or circuitry of the products should not be made. Any design alterations or additions will void the manufacturer's warranty and will further relieve the manufacturer of responsibility for personal injury or property damage resulting therefrom.
3. Many electrical and mechanical parts in the products have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the parts list of Service manual. **Electrical components having such features are identified by shading on the schematics and by (⚠) on the parts list in Service manual.** The use of a substitute replacement which does not have the same safety characteristics as the recommended replacement part shown in the parts list of Service manual may cause shock, fire, or other hazards.
4. **Use isolation transformer when hot chassis.**
   The chassis and any sub-chassis contrained in some products are connected to one side of the AC power line. An isolation transformer of adequate capacity should be inserted between the product and the AC power supply point while performing any service on some products when the HOT chassis is exposed.
5. **Don't short between the LIVE side ground and ISOLATED(NEUTRAL) side ground or EARTH side ground when repairing.**
   Some model's power circuit is partly different in the GND. The difference of the GND is shown by the LIVE : (⊥) side GND, the ISOLATED(NEUTRAL) : (⏚) side GND and EARTH : (⏚) side GND. Don't short between the LIVE side GND and ISOLATED(NEUTRAL) side GND or EARTH side GND and never measure with a measuring apparatus (oscilloscope etc.) the LIVE side GND and ISOLATED(NEUTRAL) side GND or EARTH side GND at the same time.
   If above note will not be kept, a fuse or any parts will be broken.
6. If any repair has been made to the chassis, it is recommended that the B_1 setting should be checked or adjusted (See ADJUSTMENT OF B_1 POWER SUPPLY).
7. The high voltage applied to the picture tube must conform with that specified in Service manual. Excessive high voltage can cause an increase in X-Ray emission, arcing and possible component damage, therefore operation under excessive high voltage conditions should be kept to a minimum, or should be prevented. If severe arcing occurs, remove the AC power immediately and determine the cause by visual inspection (incorrect installation, cracked or melted high voltage harness, poor soldering, etc.). To maintain the proper minimum level of soft X-Ray emission, components in the high voltage circuitry including the picture tube must be the exact replacements or alternatives approved by the manufacturer of the complete product.
8. Do not check high voltage by drawing an arc. Use a high voltage meter or a high voltage probe with a VTVM. Discharge the picture tube before attempting meter connection, by connecting a clip lead to the ground frame and connecting the other end of the lead through a 10kΩ 2W resistor to the anode button.
9. When service is required, observe the original lead dress. Extra precaution should be given to assure correct lead dress in the high voltage circuit area. Where a short circuit has occurred, those components that indicate evidence of overheating should be replaced. Always use the manufacturer's replacement components.
10. **Isolation Check**
    (Safety for Electrical Shock Hazard)
    After re-assembling the product, always perform an isolation check on the exposed metal parts of the cabinet (antenna terminals, video/audio input and output terminals, Control knobs,metal cabinet, screwheads, earphone jack, control shafts, etc.) to be sure the product is safe to operate without danger of electrical shock.

(1) **Dielectric Strength Test**
The isolation between the AC primary circuit and all metal parts exposed to the user, particularly any exposed metal part having a return path to the chassis should withstand a voltage of 1100V AC (r.m.s.) for a period of one second.
(. . . . Withstand a voltage of 1100V AC (r.m.s.) to an appliance rated up to 120V, and 3000V AC (r.m.s.) to an appliance rated 200V or more, for a period of one second.)
This method of test requires a test equipment not generally found in the service trade.

(2) **Leakage Current Check**
Plug the AC line cord directly into the AC outlet (do not use a line isolation transformer during this check.). Using a "Leakage Current Tester", measure the leakage current from each exposed metal part of the cabinet, particularly any exposed metal part having a return path to the chassis, to a known good earth ground (water pipe, etc.). Any leakage current must not exceed 0.5mA AC (r.m.s.).

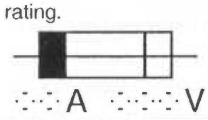
• **Alternate Check Method**
Plug the AC line cord directly into the AC outlet (do not use a line isolation transformer during this check.). Use an AC voltmeter having 1000 ohms per volt or more sensitivity in the following manner. Connect a 1500Ω 10W resistor paralleled by a 0.15μF AC-type capacitor between an exposed metal part and a known good earth ground (water pipe, etc.). Measure the AC voltage across the resistor with the AC voltmeter. Move the resistor connection to each exposed metal part, particularly any exposed metal part having a return path to the chassis, and measure the AC voltage across the resistor. Now, reverse the plug in the AC outlet and repeat each measurement. Any voltage measured must not exceed 0.35V AC (r.m.s.). This corresponds to 0.5mA AC (r.m.s.).



11. **High voltage hold down circuit check.**
    After repair of the high voltage hold down circuit, this circuit shall be checked to operate correctly.
    See item **"How to check the high voltage hold down circuit"**.

■ **ONLY CANADA**

This mark shows a fast operating fuse, the letters indicated below show the rating.



BM-H1300SU COLOR VIDEO MONITOR

JVC®

OPERATING INSTRUCTIONS

COLOR VIDEO MONITOR

BM-H1300SU

INSTRUCTIONS

For Customer Use:

Enter below the Serial No. which is located on the bottom of the cabinet. Retain this information for future reference.

Model No. **BM-H1300SU**

Serial No. _____

JVC®

JVC PROFESSIONAL PRODUCTS COMPANY
DIVISION OF US JVC CORP.
41 Slate Drive, Elmwood Park, N.J.07404
JVC CANADA INC.
21 Finchdene Square, Scarborough Ontario M1X 1A7

Printed in Japan
BM-H1300SU-IBA Ⓐ1
1294-T-V-VP

(No.50934) 3

BM-H1300SU

SAFETY PRECAUTIONS

WARNING:
TO PREVENT FIRE OR SHOCK HAZARDS, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

INFORMATION

CAUTION: Changes or modification not approved by JVC could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

■ PRECAUTIONS

- Prevent inflammables, water and metallic objects from entering the unit.
- Do not remodel or disassemble the unit. As the unit incorporates circuitry generating high voltage, physical danger and malfunctioning of the unit itself may result.
- Remove the AC power cord from the AC outlet when you are not using the unit for a long period.

■ HANDLING

- Do not apply shocks or vibrations. Malfunctioning of the unit is likely to result.
- Do not block the ventilation slots.
- Do not use it in extermaly hot places. Exposed to the direct sunlight for a long period of time or placed near a heater, the cabinet could become deformed, or the performance of the internal components may deteriorate.
- Do not place the unit near appliances generating strong electric or magnetic fields. Noisy or unstable pictures are likely to result.
- Keep the monitor clean by wiping the cabinet and CRT screen with a piece of soft cloth. Do not apply thinner or benzine. These chemicals can damage the surface finish and cause printed letters to be erased. Clean excessive soiling with a diluted neutral cleanser, then wipe away the cleanser with a dry cloth.

Thank you for purchasing this JVC color video monitor.Before using it, read and follow all instructions carefully to take fullest advantage of the monitor's performance.

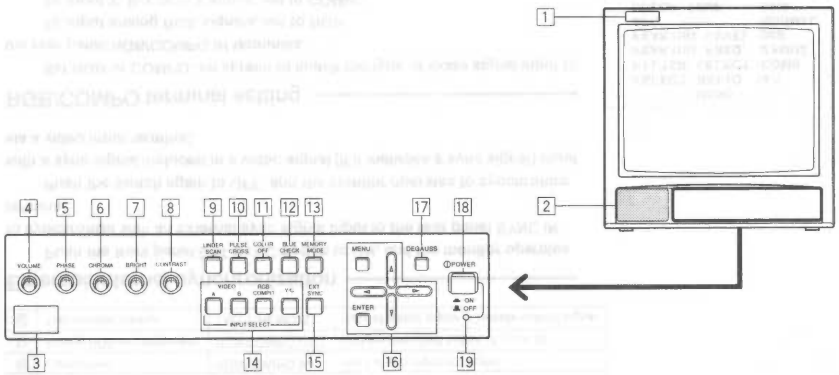
CONTENTS

FEATURES

- **For multiple applications with various video systems; equipped with external source component terminals that can be bridge-connected.**
- **Compatible with NTSC-3.58/4.43 MHz or PAL color systems.**
- **High-definition picture tube reproduces pictures with horizontal resolution of 750 or more TV lines.**
- **Auto white-balance stabilizer (I/K feedback circuit) maintains stable color reproduction over long-term use.**
- **A range of flexible functions includes picture aspect ratio switching (between 4:3 and 16:9), memory mode and control lock.**
- **Optional exclusive wireless remote control unit enables individual operation and adjustment of up to 99-unit monitors.**

CONTROLS AND FEATURES (FRONT)

(Front)



1 Tally lamp
Glows to indicate when a tally signal is input to the TALLY/REMOTE terminal on the rear panel. (For terminal connection, see page 15.)

2 Speaker

3 Remote control sensor
Senses infrared signals emitted from the optional wireless remote control.

4 VOLUME control
Turn to adjust speaker volume.

5 PHASE control
Turn to adjust picture hue, using natural skin color as a reference.

6 CHROMA control
Turn to adjust picture color density according to your requirements.

7 BRIGHT control
Turn to adjust picture brightness according to your requirements.

8 CONTRAST control
Turn to adjust the picture contrast according to your requirements.

9 UNDER SCAN switch
Push to display the whole picture on screen by reducing display area dimensions.

10 PULSE CROSS switch
Push to check the retrace period (sync signal) by delaying input signal phase.

11 COLOR OFF switch
Push to eliminate color signals and display a black-and-white picture.

12 BLUE CHECK switch
Push to eliminate red and green color signals and display a monochrome blue picture.

13 MEMORY MODE switch
Push to adjust the picture by recalling the adjustment data that you stored in memory.

14 INPUT SELECT switches
Push to select a rear terminal video signal input.

15 EXT SYNC switch
Push to synchronize the monitor with an external sync signal. This function is effective regardless of signal input.

16 MENU controls
Use to operate on-screen menu functions.

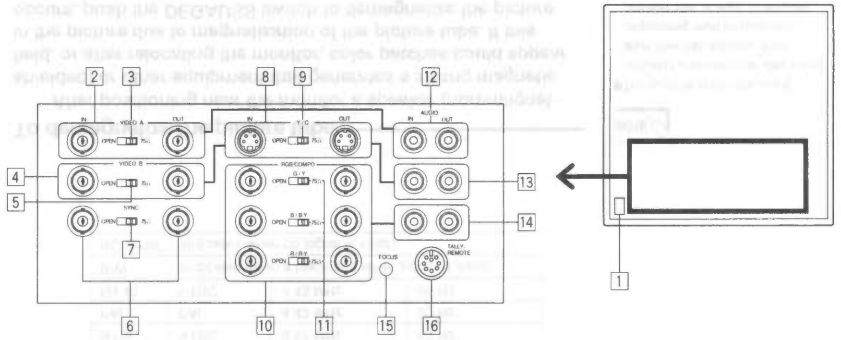
17 DEGAUSS switch
Push to demagnetize the picture tube.

18 POWER switch
Press to turn the power on or off.

19 POWER indicator
Glows to indicate that power is on.

TERMINALS AND FEATURES (REAR)

(Rear)



1 Power socket
Connect to an AC outlet (120 V AC, 50/60 Hz) using the provided power cord.

2 VIDEO A terminals
Composite video signal input terminal and bridge-connected output terminal.

3 VIDEO A termination switch
Set to OPEN for bridged connection; set to 75Ω for input signal only.

4 VIDEO B terminals
Composite video signal input terminal and bridge-connected output terminal.

5 VIDEO B termination switch
Functions as for 3.

6 SYNC terminals
External sync signal input terminal and bridge-connected output terminal. Input an external composite sync signal to these terminals when inputting a video signal without a sync signal, or when synchronizing the monitor with an external sync signal.

7 SYNC termination switch
Functions as for 3.

8 Y/C terminals
Input terminal of Y/C signals and bridge-connected output terminal.

9 Y/C termination switch
Functions as for 3.

10 RGB/COMPO terminals
Input terminal of analog RGB signals or Y/B-Y/R-Y signals and bridge-connected output terminal. For analog RGB signals, also accepts a G signal including a sync signal.

11 RGB/COMPO termination switch
Functions as for 3.

12 AUDIO A terminals
Audio signal input terminal and bridge-connected output terminal. Linked with the VIDEO A terminals so that AUDIO A terminals and VIDEO A terminals are selected simultaneously.

13 AUDIO B terminals
Audio signal input terminal and bridge-connected output terminal. Linked with the VIDEO B or Y/C terminals so that AUDIO B terminals and VIDEO B or Y/C terminals are selected simultaneously.

14 AUDIO RGB/COMPO terminals
Audio signal input terminal and bridge-connected output terminal. Linked with the RGB/COMPO terminals so that AUDIO RGB/COMPO terminals and RGB/COMPO terminals are selected simultaneously.

15 FOCUS control
Adjustment hole exclusively for use by service personnel. Make sure to consult qualified service personnel for adjustment.

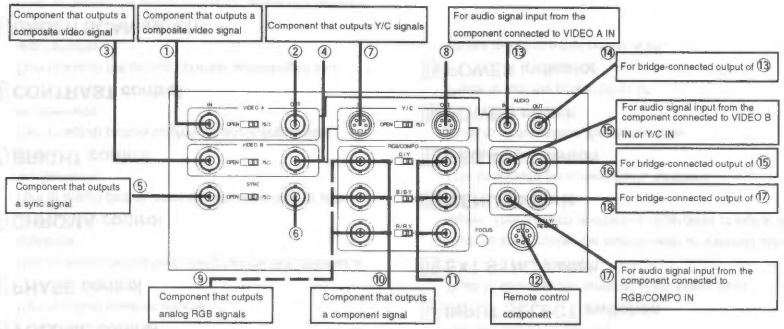
16 TALLY/REMOTE terminal
External input terminal of a tally signal to make the tally lamp glow, or of a remote-control signal to switch input or picture control.

(No.50934) 5

CONNECTION EXAMPLE

NOTE

- Be sure to turn off each component's power before connection.
- The connection shown below is only an example. Terminals and their functions differ in accordance with a component to be connected. Also read and follow the instructions for the component.



	Signal(s)	Terminal	Function
①	Composite video	VIDEO A IN	Input of a composite video signal
②	Composite video	VIDEO A OUT	Bridge-connected output of ①
③	Composite video	VIDEO B IN	Input of a composite video signal
④	Composite video	VIDEO B OUT	Bridge-connected output of ③
⑤	Composite sync	SYNC IN	Input of an external sync signal
⑥	Composite sync	SYNC OUT	Bridge-connected output of ⑤
⑦	Y/C	Y/C IN	Input of Y/C signals
⑧	Y/C	Y/C OUT	Bridge-connected output of ⑦
⑨	Analog RGB	RGB/COMPO IN	Input of analog RGB signals
⑩	Component	RGB/COMPO IN	Input of a component signal
⑪	Analog RGB or component	RGB/COMPO OUT	Bridge-connected output of ⑨ or ⑩
⑫	Tally/remote control	TALLY/REMOTE	Input of a tally signal or remote control signal

External/internal synchronization

Push the front panel EXT SYNC switch to ON, and the monitor operates to synchronize with an external sync signal input to the rear panel SYNC IN terminal.

Push the switch again to OFF, and the monitor operates to synchronize with a sync signal included in a video signal (if it includes a sync signal) input via a video input terminal.

RGB/COMPO terminal setting

Set RGB or COMPO. on screen to match the type of video signal input to the rear panel RGB/COMPO IN terminals.

To input analog RGB signals, set to RGB.

To input Y, B-Y or R-Y signal, set to COMPO..

Operation:

1. Press the front panel MENU button to call up the MENU display on screen.
2. Press the ▲ or ▼ button to select RGB/COMPONENT.
3. Press the ◄ or ► button to set RGB or COMPO..
4. Press the MENU button to complete.

```
〈MENU〉
ASPECT RATIO   :4-3
FILTER SELECT  :COMB
PEAKING FREQ.  :2.6MHZ
PEAKING LEVEL  :0dB
AFC            :NORMAL
COLOR TEMP.    :6500
NTSC SETUP     :0
COMPO. LEVEL   :SMPTE
〈MEMORY MODE〉
►RGB/COMPONENT :RGB
 ENTER         :⏎
```


BASIC OPERATION

VIDEO A ← Input mode
PAL ← Color system

1. To turn the power on: Push the POWER switch.

The POWER indicator glows green. The mode and color system of an input signal are automatically discerned and displayed on screen for about 3 seconds. To turn off power, push the POWER switch again, and the POWER indicator goes off.

2. To select the input: Push an INPUT SELECT switch.

Push VIDEO A, VIDEO B, RGB/COMPONENT or Y/C. The mode and color system of a selected input signal are automatically discerned and displayed on screen for about 3 seconds.

3. To adjust the audio level:

Turn the VOLUME control to the right to increase the level, or to the left to decrease the level.

- Relation between input mode indication and signal input/terminal

Input mode indication	Signal input/terminal
VIDEO A	Composite video signal input to VIDEO A IN
VIDEO B	Composite video signal input to VIDEO B IN
Y/C	Y/C signal input to Y/C IN
RGB	Analog RGB signal input to RGB/COMPO IN
COMPONENT	Component signal input to RGB/COMPO

- Color system indication

Indication	Color system	Color sub-carrier frequency	Vertical scanning frequency
NTSC	NTSC	3.58 MHz	60 Hz
PAL	PAL	4.43 MHz	50 Hz
N4.43	NTSC	4.43 MHz	60 Hz
B/W	(Indicates when a black-and white signal is input)		
NO SYNC	(Indicates when no signal is input)		

To demagnetize the picture tube

After positioning near the monitor a speaker (non-magnet-shielded) or other equipment that generates a strong magnetic field, or after relocating the monitor, color patches could appear in the picture due to magnetization of the picture tube. If this occurs, push the DEGAUSS switch to demagnetize the picture tube.

NOTE

- This function is not effective if activated a second time after a very short time has elapsed. When degaussing must be repeated, proceed after at least 10 minutes have passed since first degaussing.
- The optional wireless remote control features a DEGAUSS key.

PICTURE ADJUSTMENTS

Turn a separate front panel control to adjust picture contrast, picture brightness, picture color density, and picture hue respectively:

CONTRAST (picture contrast)

Softer ⟵ CONTRAST ⟶ Clearer

BRIGHT (picture brightness)

Darker ⟵ BRIGHT ⟶ Brighter

CHROMA (picture color density)

Thinner ⟵ CHROMA ⟶ Denser

PHASE (picture hue)

Purplish ⟵ PHASE ⟶ Greenish

NOTE

- To adjust the CHROMA and PHASE controls more precisely, input the color bar signal and operate the BLUE CHECK function as follows:

  After inputting the color bar signal, push the front panel BLUE CHECK switch to display a monochrome blue picture without red/green signal components. Turn the CHROMA and PHASE controls so that all (four, in the example below) blue bars have the same density and brightness.

Blue	Black	Blue	Black	Blue	Black	Blue

Relation between picture adjustments and input video signals

Each picture adjustment is effective for the following video signal input:

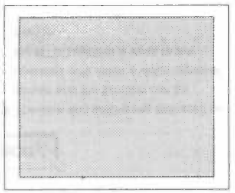
Signal / Control	Composite video, Y/C				RGB	COMPONENT
	NTSC	PAL	NTSC 4.43	B/W		
PHASE	Yes	No	Yes	No	No	No
CHROMA	Yes	Yes	Yes	No	No	Yes
BRIGHT	Yes	Yes	Yes	Yes	Yes	Yes
CONTRAST	Yes	Yes	Yes	Yes	Yes	Yes

VIDEO SIGNAL CONTROLS

Push each switch to ON or OFF for video signal control.

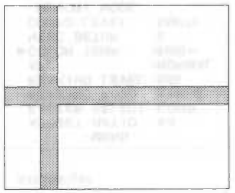
UNDER SCAN

Push the UNDER SCAN switch to reduce the dimensions of display area so the whole picture is displayed on screen. Use to check the picture frame.



PULSE CROSS

Push the PULSE CROSS switch to simultaneously display two blank areas crossed horizontally and vertically on screen ("Pulse Cross" display) by delaying the phase of the input signal. Use to check the vertical retrace line period, equalizing pulse period, vertical sync period, horizontal sync pulse, or burst signal.



NOTE

- This function is not effective for analog RGB signal input.

COLOR OFF

Push the COLOR OFF switch to display a black-and-white picture by inputting a luminance signal only. Use to check the noise contained in a luminance signal or white balance.

NOTE

- This function is not effective for analog RGB signal input.

BLUE CHECK

Push the BLUE CHECK switch to display a monochrome blue picture by eliminating red and green signal components. Use to check or adjust the CHROMA and/or PHASE controls.

(No.50934) 7

BM-H1300SU

ON-SCREEN MENU CONTROLS

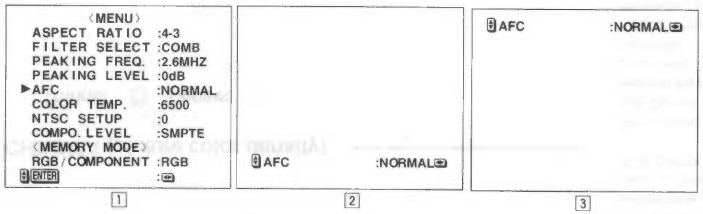
By calling up the menu display on screen, various functions can be selected and set as needed.

Calling up the menu display, selecting an item

1. Press the MENU button to call up the menu display on screen (see [1] below). (Press again to make the display disappear.)
2. Press the ▲ or ▼ button to select an item to be set. "▶" is indicated for the selected item.
3. Press the ◀ or ▶ button to change the setting.
4. After selecting another item by pressing the ▲ or ▼ button, repeat step 3. These settings are all kept in memory after power is turned off.
5. Press the MENU button to complete. The menu display disappears.

NOTE

- When the menu display [1] (shown at left below) is on screen, press the ENTER button. The display changes to [2] (shown below center). In this state, you can also select the item or change the setting.
- When the display [2] is on screen, each time the ▼ button is pressed while the ENTER button pressed, the indication moves up or down on screen (the display [3]). Press the MENU button with display [2] or [3] on screen, and the display is restored to [1].
- If no operation occurs for about 5 minutes after calling up the menu display on screen, the display disappears automatically.

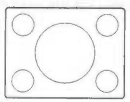


ASPECT RATIO (picture aspect ratio switching)

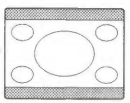
The aspect ratio of the picture can be switched between 4:3 and 16:9. When switching to "16-9" on screen, the height of the picture is slightly reduced (see right).

Setting	Function
4-3	Standard picture aspect ratio (4:3)
16-9	Displays the picture in 16:9 aspect ratio

● 4:3



● 16:9



FILTER SELECT (built-in filter selection)

When a composite video signal of the NTSC system (excluding NTSC 4.43) is input to the monitor, either or both of two filters in the monitor can be activated.

Setting	Function
COMB (comb filter)	Reduces color noise in NTSC video signals for clearer pictures.
BOTH (both filters)	Both comb and trap filters function at the same time.
NOTCH (Trap filter)	Eliminates dot interference that would show up in the vertical boundary between two different colors.

NOTE

- The function can be operated and the indication appears only when a composite video signal of the NTSC system (excluding NTSC 4.43) is input to the monitor.

ON-SCREEN MENU CONTROLS (continued)

PEAKING FREQ./PEAKING LEVEL (picture quality improvement)

Corrects the luminance signal to improve picture quality by changing peak frequency and/or peak level depending on the video signal input to the monitor. Use PEAKING FREQ. to set correction frequency. Use PEAKING LEVEL to set correction level.

Setting (frequency)	Function
2.6 MHz	For composite video signal or Y/C signal.
5.0 MHz	For component video signal.

Setting (level)	Function
0 dB to +9 dBs	Set a higher level for correction to a higher degree.

NOTE

- When analog RGB signals are input to the monitor, the indications do not appear and the functions cannot be operated.

AFC (switching of time constant for the AFC)

Use to set the time constant for the AFC (auto fine-frequency control) to correct skew distortion of video signals input via a videotape recorder or other video equipment.

Setting	Function
NORMAL	Normal-speed correction.
FAST	Faster correction.
SLOW	Slower correction.

NOTE

- By changing the default setting of white balance adjustment under the SET-UP MENU display (see page 15 for adjustment), the * indication is added to the right of the setting to indicate that the factory-preset setting was changed.

COLOR TEMP. (color temperature switching)

Use to set the color temperature of white balance.

Setting	Function
9300	To 9300K.
6500	To 6500K.

〈MENU〉
ASPECT RATIO :4-3
FILTER SELECT :COMB
PEAKING FREQ. :2.6MHZ
PEAKING LEVEL :0dB
AFC :NORMAL
▶COLOR TEMP. :6500 *
NTSC SETUP :0
COMPO. LEVEL :SMPTE
〈MEMORY MODE〉
RGB/COMPONENT :RGB
ENTER :

NOTE

- The item and setting are indicated on screen and the function can be operated only when a video signal of the NTSC system is input to the monitor.

NTSC SETUP (NTSC set-up level)

Use to set up the luminance signal level to match the configuration of the video signal input to the monitor.

Setting	Function
0	For video signal with 0% luminance signal
7.5	For video signal with 7.5% luminance signal

NOTE

- The item and setting are indicated on screen and the function can be operated only when a component video signal is input to the monitor.

COMPO. LEVEL (chrominance level setting)

Use to set the chrominance level of a component video signal.

Setting	Function
SMPTE	For component video signal input via an MII videotape recorder.
BETA00	For component video signal input (set-up level: 0%) via a BETACAM videotape recorder.
BETA75	For component video signal input (set-up level: 7.5%) via a BETACAM videotape recorder.

MEMORY MODE

A set of picture settings can be programmed in memory for quick recall when necessary.

Recall/release of memory mode

Press the MEMORY MODE switch to recall a set of picture settings programmed in memory.

Pressing the switch locks the functions of the front-panel PHASE, CHROMA, BRIGHT, CONTRAST controls, and remote-control picture adjustments not to be operated.

Press again to release memory mode.

NOTE

- If you attempt to operate a locked function, "MEMORY MODE ON!!" appears on screen for approx. 2 seconds to indicate the function cannot be operated.

Setting programming of the picture being monitored

The settings of the picture being monitored can be programmed in memory.

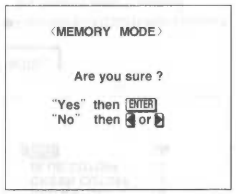
Settings programmable in memory mode:

- Settings of the CONTRAST, BRIGHT, CHROMA and PHASE controls on the front panel
- On-screen menu function settings (except RGB/COMPONENT)
- Remote-control picture adjustment settings

1. Check the MEMORY MODE switch is off.
2. Press the MENU button.
3. Press the ▲ or ▼ button to select MEMORY MODE. Then press the ENTER button.
4. ● Press the ENTER button to program.
   ● Press the ◀ or ▶ button to cancel.

NOTE

- Programmed picture settings are kept in memory after the power is turned off.



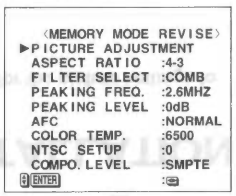
NOTE

- No matter what video signal is input, all items appear on screen. However, depending on the type of input video signal, some functions might not operate even if their settings are made.

Revision of memory mode

Programmed picture settings can be revised if necessary.

1. Press the MEMORY MODE switch to activate memory mode.
2. Press the MENU button to call up display 1 on screen.



1

MEMORY MODE (continued)

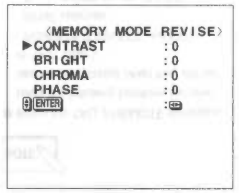
3. Press the ▲ or ▼ button to select a function to be revised.

Press the ENTER button after selecting PICTURE ADJUSTMENT to call up display 2.

After making all settings on screen, press the MENU button to make display 1 appear.

4. Press the ◀ or ▶ button to change the set level.

Adjustable CONTRAST, BRIGHT, CHROMA or PHASE range depends on each set level previously stored in memory. MAX appears to indicate maximum level that cannot be increased. MIN appears to indicate minimum level that cannot be decreased.



2

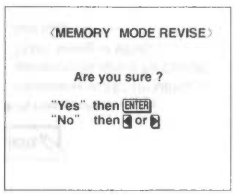
●Variable setting range

Function		Variable setting range	Default set level
PICTURE ADJUSTMENT	CONTRAST	-20 to +20	0
	BRIGHT	-20 to +20	0
	CHROMA	-20 to +20	0
	PHASE	-20 to +20	0
ASPECT RATIO		4:3 16:9	4:3
FILTER SELECT		COMB BOTH NOTCH	COMB
PEAKING FREQ.		2.6MHz 5.0MHz	2.6MHz
PEAKING LEVEL		0dB + 1dB ··· +9dB	0dB
AFC		NORMAL FAST SLOW	NORMAL
COLOR TEMP.		9300 6500	6500
NTSC SETUP		0 7.5	0
COMPO. LEVEL		SMPTE BETA00 BETA7.5	SMPTE

NOTE

- If the ENTER button is pressed after a function other than PICTURE ADJUSTMENT is selected, the on-screen display changes into a single-line one. To select another function after making a change in function, press the MENU button to restore display 1.

5. With display 1 on screen, press the MENU button to make display 3 appear.
   ●Press the ENTER button to program.
   ●Press the ◀ or ▶ button to cancel.



3

(No.50934) 9

BM-H1300SU

SET-UP FOR MONITOR INSTALLATION

When installing the monitor, make set-up adjustments required for the picture settings to match conditions where the monitor is to be used.

To call up SET-UP MENU and select a function:

1. To make [1] (SET-UP MENU) appear, with the ENTER button pressed, press the MENU button.
2. Press the ▲ or ▼ button to select an adjustment item.
   (To set STATUS DISPLAY or CONTROL LOCK, steps **3** and **4** are not necessary.)
3. Press the ENTER button to call up the adjustment menu [2] of a selected item (e.g. WHITE BALANCE).
4. Press the ▲ or ▼ button to select a function to be adjusted.
5. Press the ◄ or ► button to change the setting.
6. With the display [1] on screen, press the ▲ or ▼ button to select another function and repeat step **5**.
7. Press the MENU button to complete. SET-UP MENU disappears.
   - To make [1] (SET-UP MENU) disappear:
     Press the MENU button.
   - To make [2] (e.g. WHITE BALANCE) disappear:
     Press the MENU button twice.

〈SET-UP MENU〉
SIZE/CENTERING
▶WHITE BALANCE ADJUST
REMOTE SELECT
STATUS DISPLAY : ON
CONTROL LOCK : OFF
9 ENTER :

[1]

〈WHITE BALANCE〉
▶RED DRIVE : 0
GREEN DRIVE : 0
BLUE DRIVE : 0
RED CUTOFF : 0
GREEN CUTOFF : 0
BLUE CUTOFF : 0
9 ENTER :

[2]

NOTE

- Each time the MENU button is pressed, the previous menu is restored.

SIZE/CENTERING (size/positioning adjustments of RGB signal pictures)

For analog RGB video signal pictures, horizontal size, vertical size, horizontal positioning and vertical positioning can be finely adjusted.

NOTE

- SIZE/CENTERING appears and the function is operable only when monitoring the picture of analog RGB video signals.

Adjustment (level)	Function
H. POSITION (-10, -9 ... 0 ... +9, +10)	+ moves the picture to right. - moves the picture to left.
V. POSITION (-10, -9 ... 0 ... +9, +10)	+ moves the picture down. - moves the picture up.
H. SIZE (-10, -9 ... 0 ... +9, +10)	+ makes the picture wider. - makes the picture narrower.
V. SIZE (-10, -9 ... 0 ... +9, +10)	+ makes the picture higher. - makes the picture lower.

SET-UP FOR MONITOR INSTALLATION (continued)

WHITE BALANCE ADJUST (white balance adjustments)

Before making these adjustments, select the color temperature 9300K or 6500K on MENU.

NOTE

- By making white balance adjustments on SET-UP MENU, ✻ appears to the right of the COLOR TEMP. setting on MENU (see page 11).

Adjustment (level)	Function
RED DRIVE (-10, -9, ... 0 ... +9, +10)	Adjusts the drive level of a red signal component.
GREEN DRIVE (-10, -9, ... 0 ... +9, +10)	Adjusts the drive level of a green signal component.
BLUE DRIVE (-10, -9, ... 0 ... +9, +10)	Adjusts the drive level of a blue signal component.
RED CUTOFF (-10, -9, ... 0 ... +9, +10)	Sets the cut-off voltage of a red signal component.
GREEN CUTOFF (-10, -9, ... 0 ... +9, +10)	Sets the cut-off voltage of a green signal component.
BLUE CUTOFF (-10, -9, ... 0 ... +9, +10)	Sets the cut-off voltage of a blue signal component.

REMOTE SELECT (TALLY/REMOTE-terminal settings)

Via the TALLY/REMOTE terminal, the tally lamp can be turned on/off, or a function (selected from display [3] shown on the right) can be operated using an external control.

〈REMOTE SELECT〉
▶ INPUT : A↔B
CNTL-1 : UNDER SCAN
CNTL-2 : ASPECT RATIO
9 ENTER :

[3]

INPUT setting indications and selected inputs

✻: indicates when deactivating the remote control via the TALLY/REMOTE terminal

Setting indication	NOT USE	A↔B	A↔Y/C	A↔RGB	A↔COMPO	B↔Y/C	B↔RGB	B↔COMPO	Y/C↔RGB	Y/C↔COMPO	RGB↔COMPO
Short-circuit	✻	A	A	A	A	B	B	B	Y/C	Y/C	RGB
Open-circuit	✻	B	Y/C	RGB	COMPO.	Y/C	RGB	COMPO.	RGB	COMPO.	COMPO.

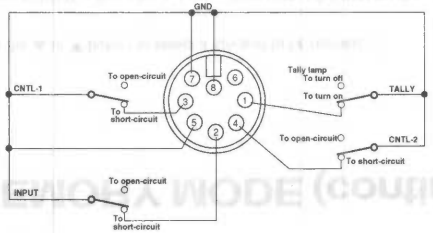
CNTL-1/CNTL-2 setting indications and set positions

✻: indicates when deactivating the remote control via the TALLY/REMOTE terminal

Setting indication	NOT USE	UNDER SCAN	PULSE CROSS	COLOR OFF	BLUE CHECK	EXTERNAL SYNC	ASPECT RATIO	COLOR TEMP.	AUDIO MUTE
Short-circuit	✻	ON	ON	ON	ON	External	16-9	6500	ON
Open-circuit	✻	OFF	OFF	OFF	OFF	Internal	4-3	9300	OFF

●TALLY/REMOTE terminal functions

All controls via TALLY/REMOTE terminal are made by short-circuiting or open-circuiting any pin from Pin 1 to 4 and either Pin 7 or 8 (GND each) of this terminal.
When using this terminal, be sure to short-circuit Pin 5 and either Pin 7 or 8.



NOTE

- When the TALLY/REMOTE terminal is used, the following functions become deactivated (except when they are set to "NOT USE"):
  - Front INPUT SELECT and EXT SYNC switches
  - Front UNDER SCAN, PULSE CROSS, COLOR OFF and BLUE CHECK switches
  - On-screen MENU's ASPECT RATIO and COLOR TEMP. functions
  - Remote MUTE key
- If a function is applied to both CNTL-1 and CNTL-2, CNTL-1 has priority.

SET-UP FOR MONITOR INSTALLATION (continued)

STATUS DISPLAY (setting the status display to on/off)

When the power is turned on or the input mode is switched, the status display (color system and input mode) appears on screen. The display can be set to on or off.

Setting	Function
ON	Status display appears
OFF	Status display does not appear.

CONTROL LOCK (deactivation of front-control functions)

Set CONTROL LOCK to ON on screen to deactivate the front-control functions (front VOLUME control and remote volume control are operable).

Setting	Function
ON	Deactivates the front controls (except front/remote volume controls).
OFF	Releases deactivated functions.

NOTE

- If you attempt to operate a locked function, "CONTROL LOCK ON!!" appears on screen for approx. 2 seconds to indicate the function cannot be operated.
- Once CONTROL LOCK is deactivated, the current settings of the front-control knobs and buttons are activated.
- If the power is turned off with CONTROL LOCK activated, the function is kept in memory.

PICTURE SETTING INITIALIZATION

MENU and/or SET-UP MENU settings including added changes can be reset (initialized) to their factory-preset conditions.

To initialize MENU settings only

MENU settings (except MEMORY MODE and RGB/COMPONENT) can be exclusively reset:

1. With the ▼ button pressed, press the MENU button to display [1] on screen.
2. ● Press the ENTER button to reset.
   ● Press the ◄ or ► button to cancel.

NOTE

●For factory-presets on the MENU settings, see page 22.

〈MENU〉 RESET

Are you sure ?

"Yes" then ENTER
"No" then ◄ or ►

[1]

● MENU and PICTURE ADJUST settings (except MEMORY MODE and RGB/COMPONENT) can also be simultaneously reset via the optional wireless remote control unit:

1. Press the MENU key to display MENU on screen.
2. Press the RESET key to execute.

To initialize both MENU/SET-UP MENU settings

MENU and SET-UP MENU settings other than MEMORY MODE and RGB/COMPONENT can be reset at the same time. In this case, PICTURE ADJUST settings via remote control are also reset, and the monitor's ID number is also reset to 00.

1. Press the POWER switch to turn the power off.
2. With the ▼ and MENU buttons pressed, press the POWER switch to turn the power on. Keep pressing the ▼ and MENU buttons until [2] appears on screen.
3. Press the ▲ or ▼ button to select SET-UP MENU RESET. Then press the ENTER button to display [3] on screen.
4. ● Press the ENTER button again to execute.
   ● Press the ◄ or ► button to cancel.

〈INITIALIZE MENU〉
ID NUMBER SET
►〈SET-UP MENU〉 RESET
ENTER

[2]

〈SET-UP MENU〉 RESET

Are you sure ?

"Yes" then ENTER
"No" then ◄ or ►

[3]

REMOTE CONTROLS

The optional wireless remote control unit (RM-C550W) operates the following:

- **On-screen menu functions (MENU, SET-UP MENU, etc.)**
- **Picture adjustments (CONTRAST, BRIGHT, CHROMA, PHASE)**
- **Sound adjustments (VOLUME, MUTE)**

On-screen menu remote operation

Remote keys and front controls with the same designation share the common functions. For detailed operation, see instructions about each menu function in this manual.

Picture adjustments

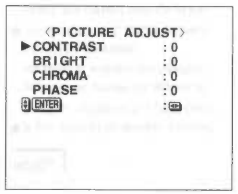
Each adjustable range depends on the setting of the front CONTRAST/BRIGHT/CHROMA or PHASE control. If an adjustment is made via remote control with the front control set approximately to the maximum or minimum, the level may indicate a certain change on screen but may not actually increase or decrease.

1. Press the PICTURE key to display PICTURE ADJUST.
2. Press the ▲ or ▼ key to select an item.
3. Press the ◄ or ► key to change the level:
   ◄ : Moves the cursor to left (to decrease the level).
   ► : Moves the cursor to right (to increase the level).
4. Press the ▲ or ▼ key to another item and repeat step **3**.
5. Press the PICTURE key to complete.

- **To standardize all settings on PICTURE ADJUST: After step 1, press the RESET key.**

NOTE

- When monitoring the picture of analog RGB signals, component signal or black-and-white signal, CHROMA and PHASE do not appear and cannot be adjusted.
- When a video signal of the PAL system is input to the monitor, PHASE does not appear and cannot be adjusted.



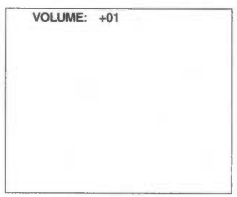
NOTE

- Each time the PICTURE key is pressed, the previous display is restored.

Sound adjustments

A variable range depends on the setting of the front VOLUME control. If audio level is remote-controlled with front VOLUME control set approximately to the maximum or minimum, the level may indicate a certain change on screen but may not actually increase or decrease.

- Press the VOLUME – or + key to decrease or increase the level (within ±20).
- Press the MUTE key to mute the sound. MUTE appears on screen for approx. 3 seconds. Press again to release.



NOTE

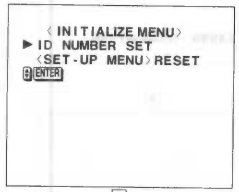
- If the power is turned off with sound-muting activated, the function is kept in memory.
- To release sound-muting, turn the front VOLUME control or press the remote VOLUME – or + key .

EACH REMOTE CONTROL OF PLURAL MONITORS

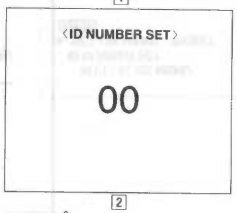
To operate or adjust plural units of monitors, by programming and assigning an ID number (00 to 99) for each monitor, a specified monitor can be remote-controlled.

To program an ID number (use front controls):

1. Press the POWER switch to turn the power off.
2. With the ▼ and MENU buttons pressed, press the POWER switch to turn the power on. Keep pressing the ▼ and MENU buttons until [1] appears.
3. Press the ▲ or ▼ button to select ID NUMBER SET. Then press the ENTER button to display [2].
4. Select an ID number.
   - Press the ► button to increase.
   - Press the ◄ button to decrease.
5. Press the ENTER button to program.



[1]



[2]

NOTE

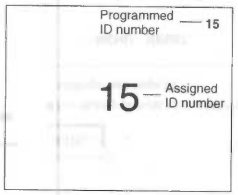
- ID number 00 is always indicated in red.

To call up an ID number (use remote unit):

1. Press the DISPLAY key to indicate a programmed ID number at top right of the screen.
   - Red-indicated ID number:
     indicates the monitor can be remote-controlled.
   - Green-indicated ID number:
     indicates the monitor cannot be remote-controlled.
2. Press the DISPLAY key to make the number disappear.

To assign a monitor (use remote control):

1. Press the DISPLAY key to display the monitor's programmed ID number.
2. Press the numeric keys to enter the monitor's ID number.
   The entered ID number appears and blinks on screen center.
3. Press the ID SET key to complete.
   The programmed ID number in the top right of the screen turns red to indicate the monitor was assigned. Other monitors' ID numbers are indicated in green.
4. After adjusting the monitor, repeat steps **2** to **4** to adjust each monitor if necessary.
5. Press the DISPLAY key to clear on-screen ID numbers.



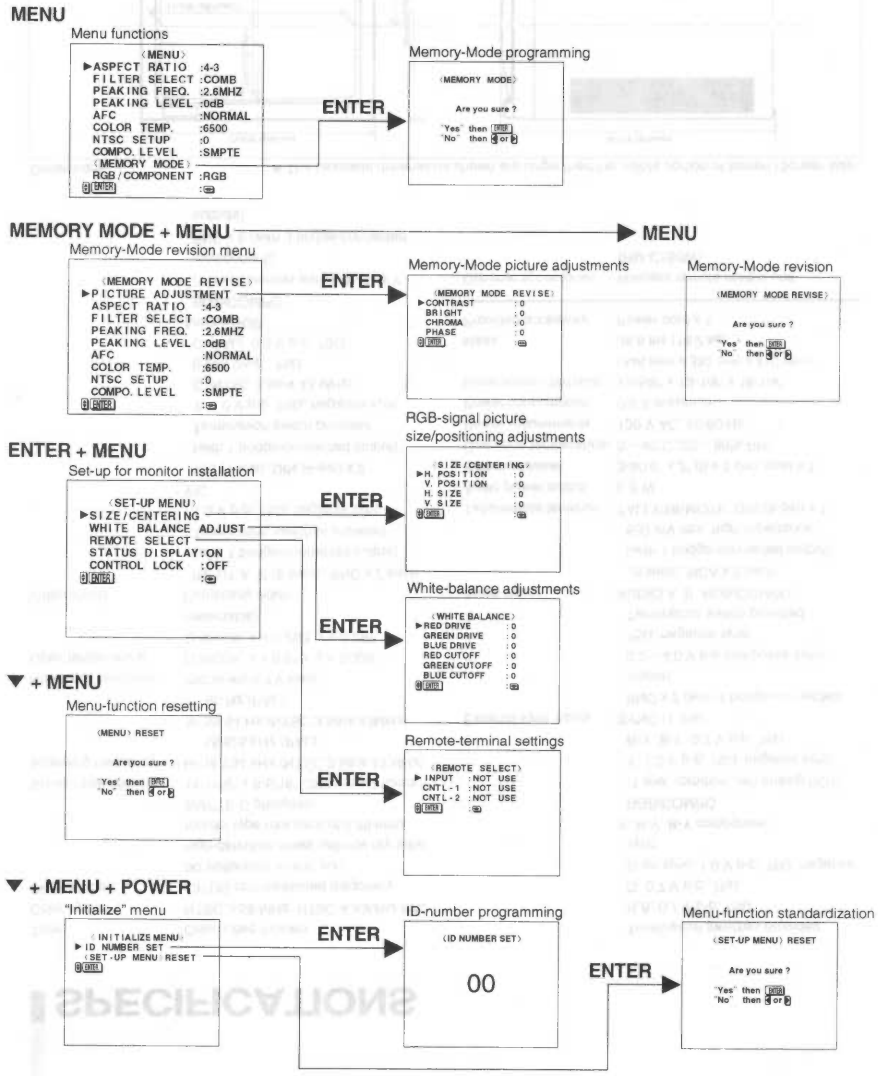
BEFORE CALLING FOR SERVICE

Before concluding a problem has occurred, check the following points. If the problem persists after carrying out the checks, disconnect the power cord from the AC outlet and consult the dealer from whom you purchased the monitor.

Problems	Points to be checked	Measures
Inoperable adjustment controls or buttons.	Is MEMORY MODE switched on?	Switch off.
	Is CONTROL LOCK activated?	Deactivate it.
Abnormal picture adjustments with all controls at center.	Are PICTURE ADJUST menu settings changed via remote control?	Reset to standard settings.
Inoperable picture synchronization.	Is EXT SYNC switched on?	Switch to off.
Inoperable remote-controlled picture adjustments.	Are the front controls set approximately to the maximum or minimum?	If so, the settings may not extend any more via remote control (although setting levels indicated on screen may show a slight change).
Assigned remote control ID number operates another monitor.	Is ID number 00 programmed for other monitors?	Program an ID number other than 00.
	Do other monitors indicate a red ID number?	Assign the ID number again.
Inoperable remote control.	Is the ID number programmed for other monitors assigned?	Assign the monitor's programmed ID number.
No sound via audio signal input.	Does the audio input terminal match the video input terminal?	Each audio input terminal is linked with a video input terminal.
No INITIALIZE MENU display.	Are you pressing the ▼ and MENU buttons until it appears?	Keep pressing these buttons until it appears.
Inoperable CNTL-2 external control via TALLY/REMOTE terminal.	Is a function applied common to CNTL-1 and CNTL-2?	Set other functions to CNTL-2.

MENU DISPLAY CHART

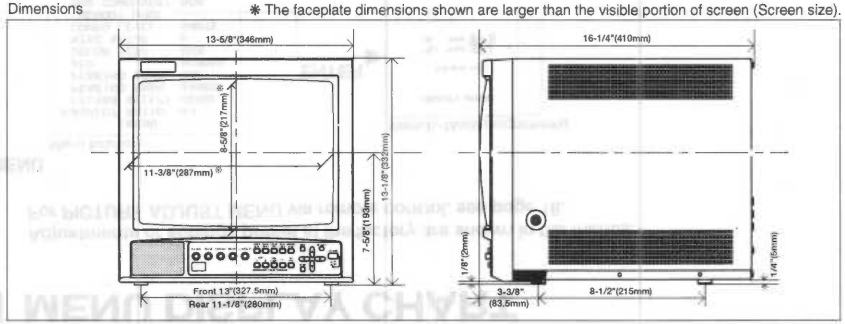
Adjustments or settings preset at the factory are shown in the menus.
For PICTURE ADJUST MENU via remote control, see page 18.



SPECIFICATIONS

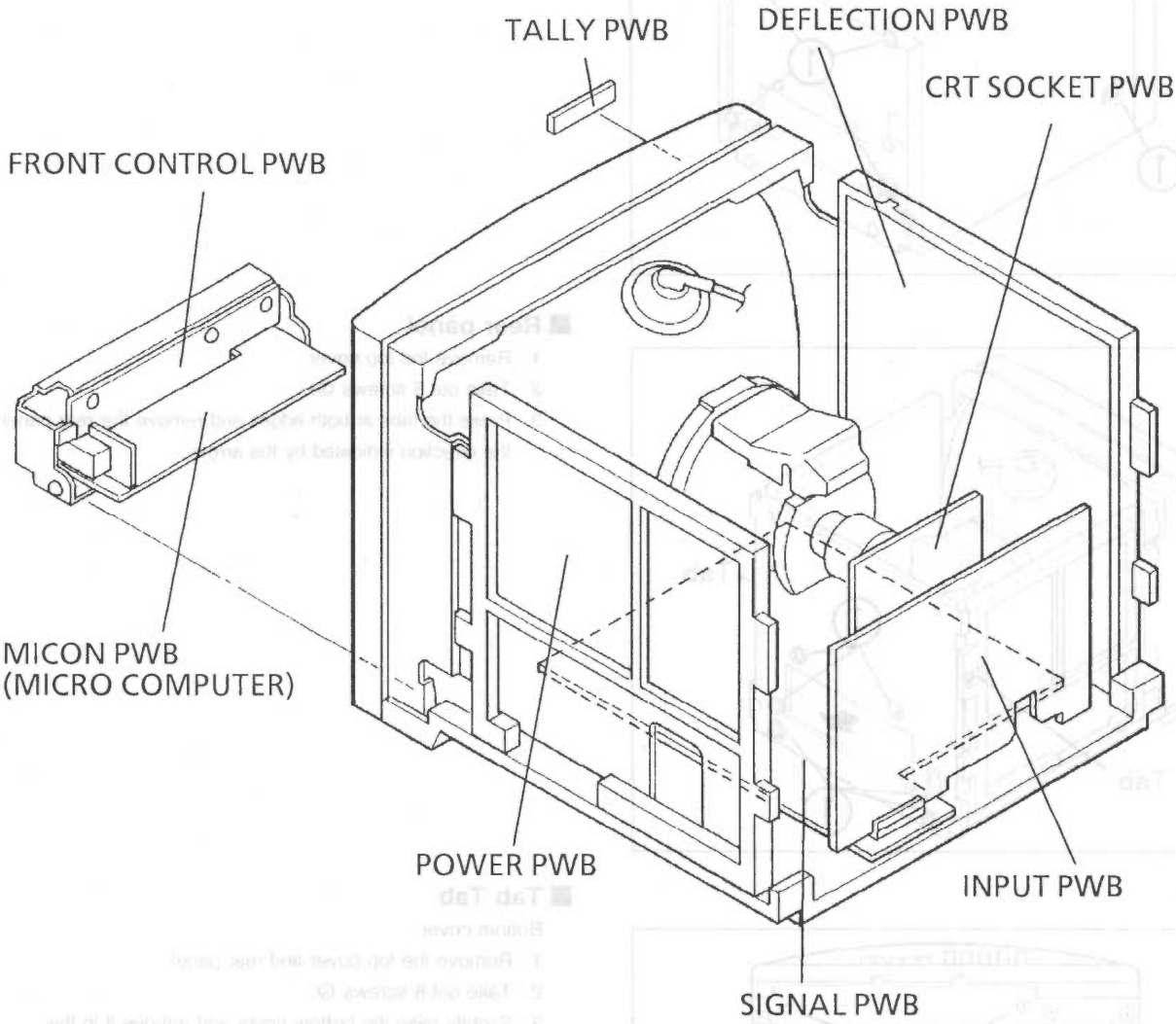
Type	: Color video monitor
Color systems	: NTSC 3.58 MHz, NTSC 4.43MHz,PAL
Picture tube	: 13" (33 cm) measured diagonally, 90°deflection, in-line gun, high-definition tinted cathode ray tube, trio-dot type (dot pitch of 0.28 mm), SMPTE-C phosphor
Screen size (WxH)	: 11-1/16" x 8-5/16" (280mm x 210mm)
Scanning frequency	: H: 15.734 kHz (NTSC 3.58/4.43 MHz) 15.625 kHz (PAL) V: 59.94 Hz (NTSC 3.58/4.43MHz) 50 Hz (PAL)
Horizontal resolution	: 750 or more TV lines
Color temperature	: D-6500K; x = 0.313, y = 0.329 D-9300K; x = 0.283, y = 0.297 (selectable)
Video inputs	: Composite video INPUT A, B (2 lines), BNC x 2 each (with 1 bridge-connected output) Termination switches provided 1.0 V p-p, 75Ω, negative sync : Y/C Y/C (1 line), DIN (4-pin) x 2 (with 1 bridge-connected output) Termination switch provided Y: 1.0 V p-p, 75Ω, negative sync C (NTSC 3.58/4.43 MHz): 0.286 Vp-p, 75Ω C (PAL): 0.3 V p-p, 75Ω : Analog RGB RGB/COMPO (1 line: common with Y, R-Y, B-Y, component), BNC x 6 (with 3 bridge-connected outputs) Termination switches provided R,B: 0.7 V p-p, 75Ω G: 0.7 V p-p, 75Ω G on sync: 1.0 V p-p, 75Ω, negative sync : Y, R-Y, B-Y component RGB/COMPO (1 line: common with analog RGB) Y: 1.0 V p-p, 75Ω, negative sync R-Y, B-Y: 0.7 V p-p, 75Ω
External sync inputs	: SYNC (1 line), BNC x 2 (with 1 bridge-connected output) 0.2 – 4.0 V p-p composite sync, 75Ω, negative sync Termination switch provided
Audio inputs	: AUDIO A, B, RGB/COMPO (3 lines), RCA x 2 each (with 1 bridge-connected output) 500 mV rms, high impedance
Tally/remote terminal	: TALLY/REMOTE, DIN (8-pin) x 1
Audio power output	: 0.8 W
Built-in speaker	: 3-9/16" x 2" (9 x 5 cm) oval x 1
Operation temperature	: 0 – 40°C (20 – 80% RH)
Power requirements	: 120 V AC, 50/60 Hz
Power consumption	: 0.9 A maximum
Dimensions (WxHxD)	: 13-5/8" x 13-1/8" x 16-1/4" (346 mm x 332 mm x 410 mm)
Mass	: 35.6 lbs (16.2 kg)
Provided accessory	: Power cord x 1
Optional accessories	: Wireless remote control unit (RM-C550W)

Dimensions ✻ The faceplate dimensions shown are larger than the visible portion of screen (Screen size).



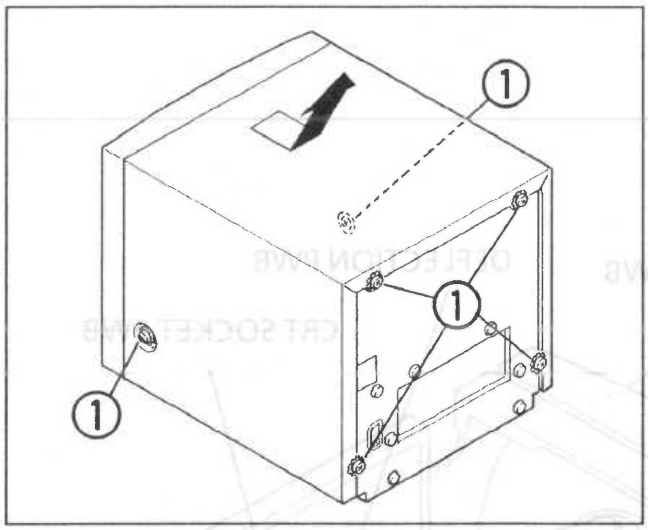
E. & O.E. Design and specifications subject to change without notice.

MAIN PARTS LOCATION



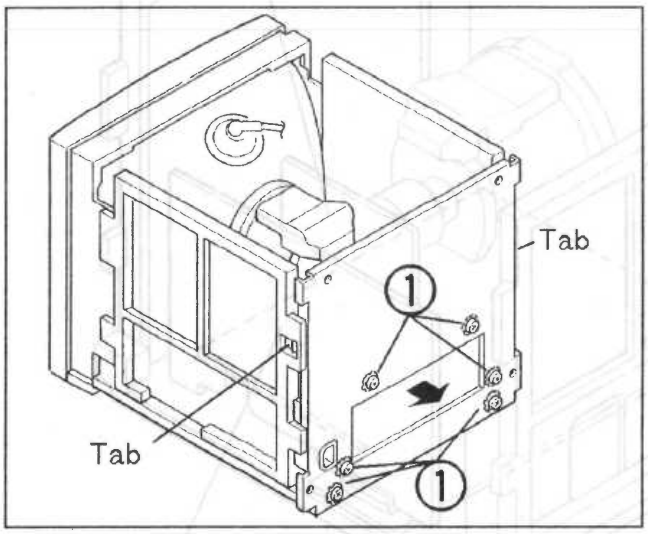
SPECIFIC SERVICE INSTRUCTIONS

Disassembly



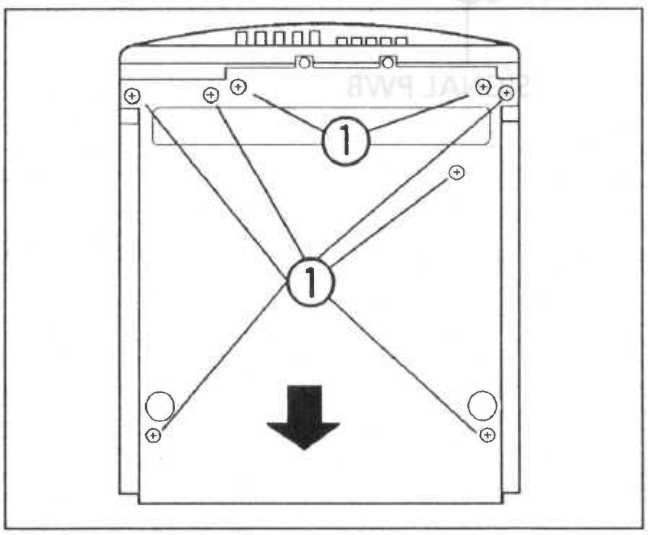
■ Top cover

1. Take out 6 screws ①
2. Slightly spread the bottom of the cover, shift it rearward, then raise the cover to remove it.



■ Rear panel

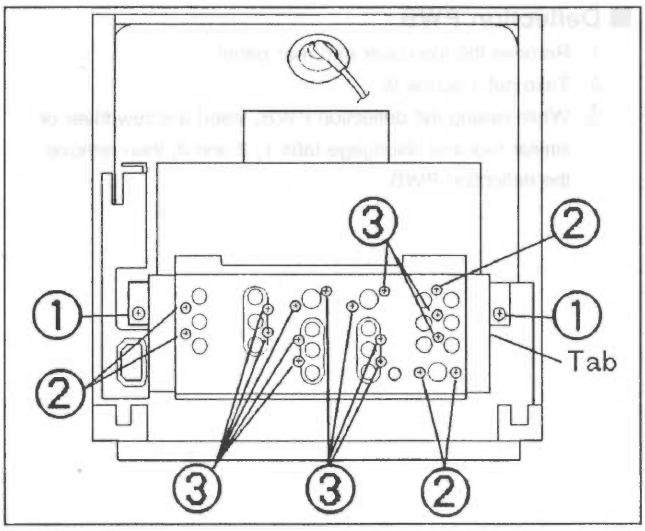
1. Remove the top cover.
2. Take out 6 screws ①.
3. Press the tabs at both edges and remove the rear panel in the direction indicated by the arrow.



■ Tab Tab

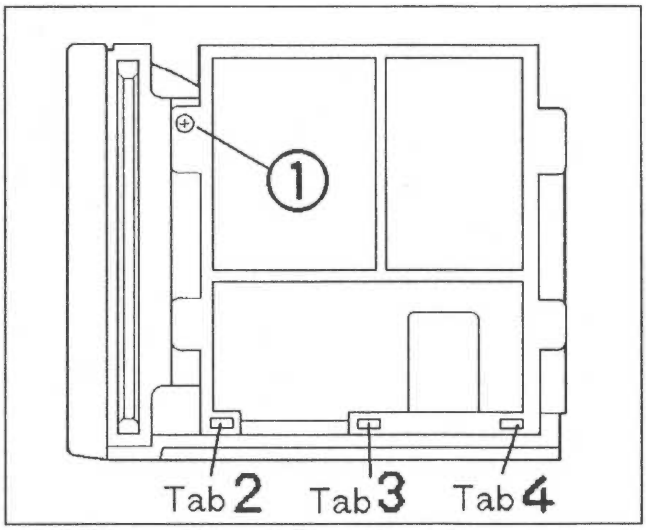
Bottom cover

1. Remove the top cover and rear panel.
2. Take out 8 screws ①.
3. Slightly raise the bottom cover and remove it in the direction indicated by the arrow.



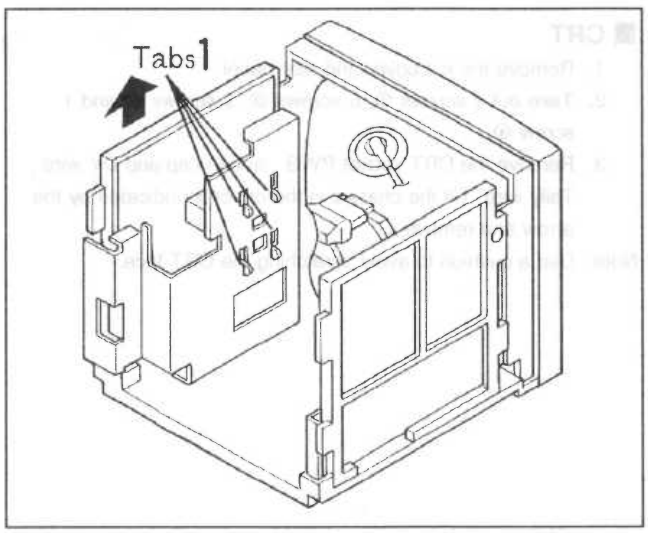
■ Input PWB, terminal sheet and terminal bracket

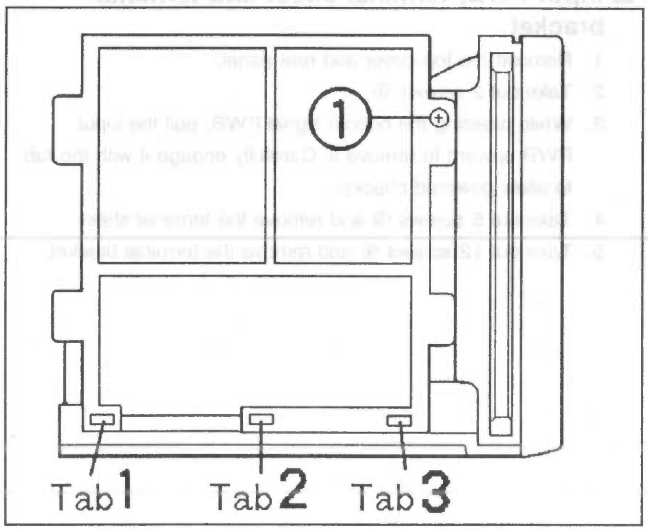
1. Remove the top cover and rear panel.
2. Take out 2 screws ①.
3. While pressing the bottom signal PWB, pull the input PWB upward to remove it. Carefully engage it with the tab to allow powered checks.
4. Take out 5 screws ② and remove the terminal sheet.
5. Take out 12 screws ③ and remove the terminal bracket.



■ Power supply PWB

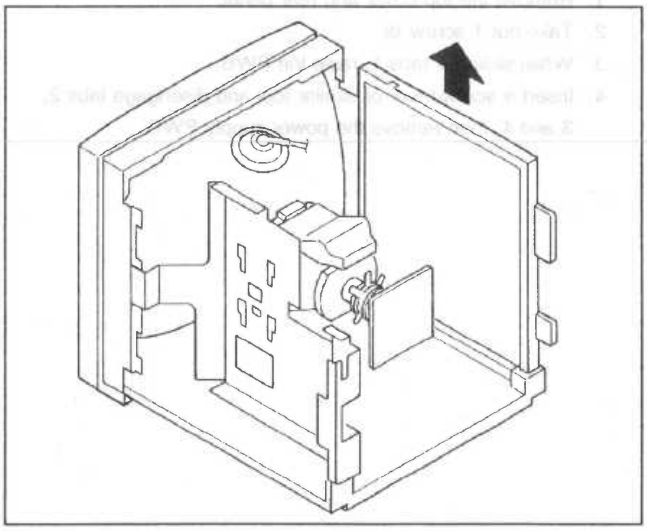
1. Remove the top cover and rear panel.
2. Take out 1 screw ①.
3. While sliding 4 tabs 1, raise the PWB.
4. Insert a screwdriver or similar tool and disengage tabs 2, 3 and 4, then remove the power supply PWB.

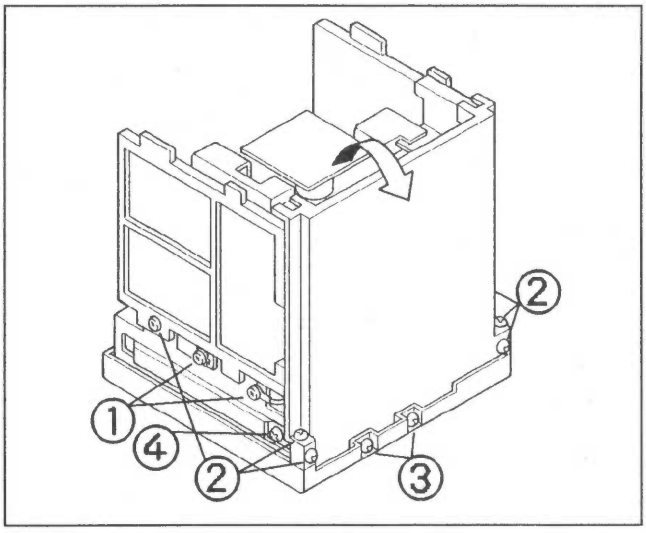




■ Deflection PWB

1. Remove the top cover and rear panel.
2. Take out 1 screw ①.
3. While raising the deflection PWB, insert a screwdriver or similar tool and disengage tabs 1, 2 and 3, then remove the deflection PWB.

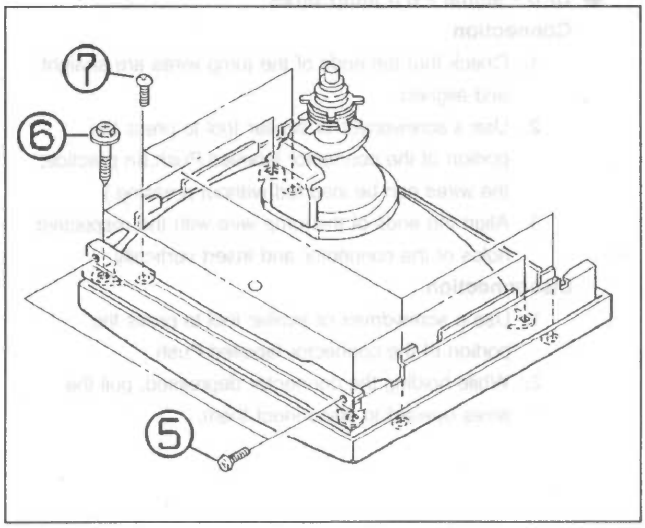




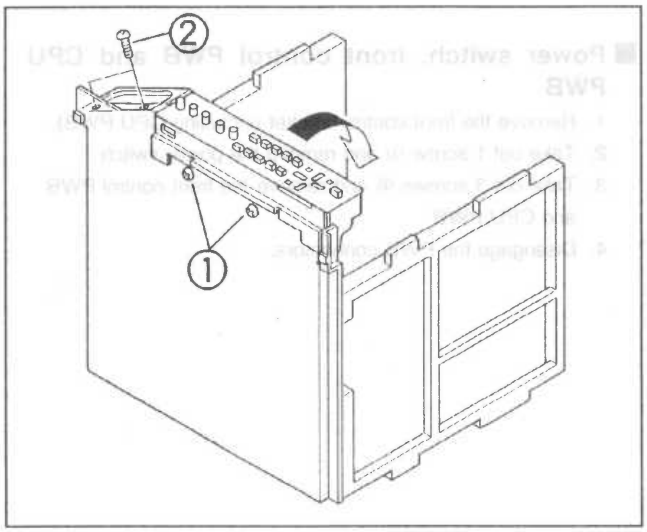
■ CRT

1. Remove the top cover and rear panel.
2. Take out 2 screws ①, 6 screws ②, 2 screws ③ and 1 screw ④.
3. Remove the CRT socket PWB , anode cap and DY wire , Tally wire. Tilt the chassis in the direction indicated by the arrow and remove it.

Note: Use a cushion to avoid scratching the CRT face.

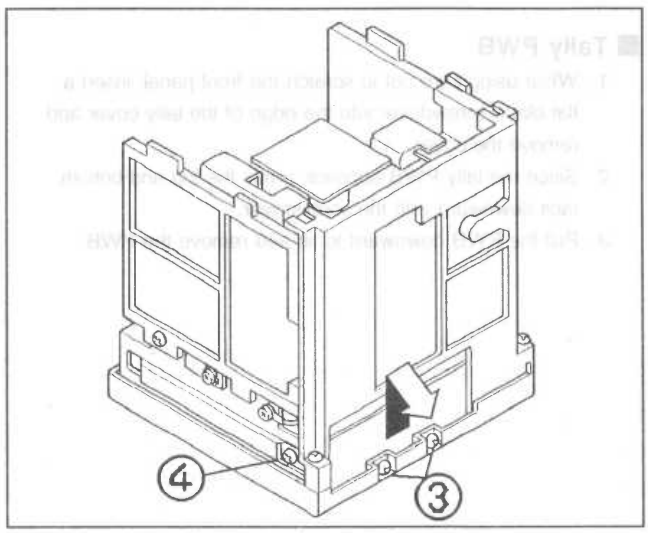


4. Take out 2 screws ⑧ and remove the top beam.
5. Take out 4 screws ⑦ and remove the left and right CRT side shields.
6. Take out 4 screws ⑥ and remove the CRT.



■ Front control bracket and speaker

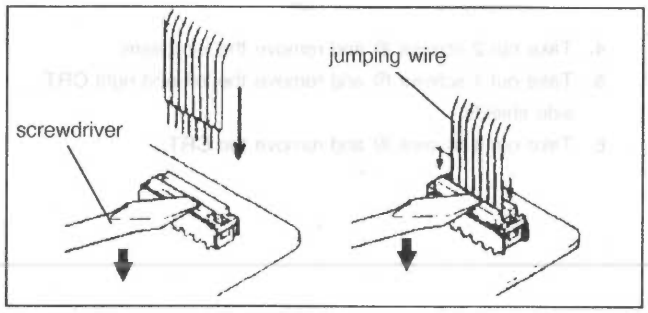
1. Remove the top cover and rear panel, and disengage the chassis.
2. Take out 2 screws ① and remove the front control panel bracket (including the CPU PWB).
3. Take out 2 screws ② and remove the speaker.

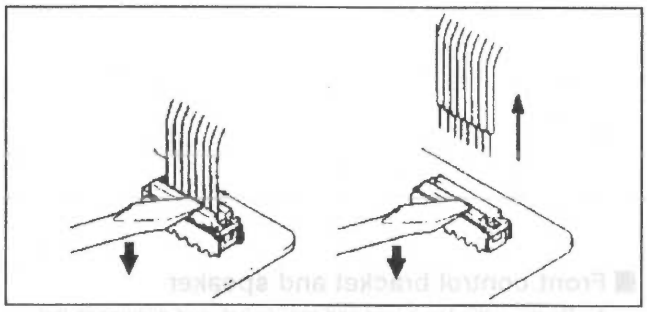


● **The front control bracket can be removed without removing the chassis.**

1. Remove the bottom cover and take out 2 screws ③ and 1 screw ④.
2. Disengage the power switch connector.
3. While raising the front control bracket, remove it outward. Use care not to snag the volume knob with the front panel.

Note:Work is easier with the set upside down.





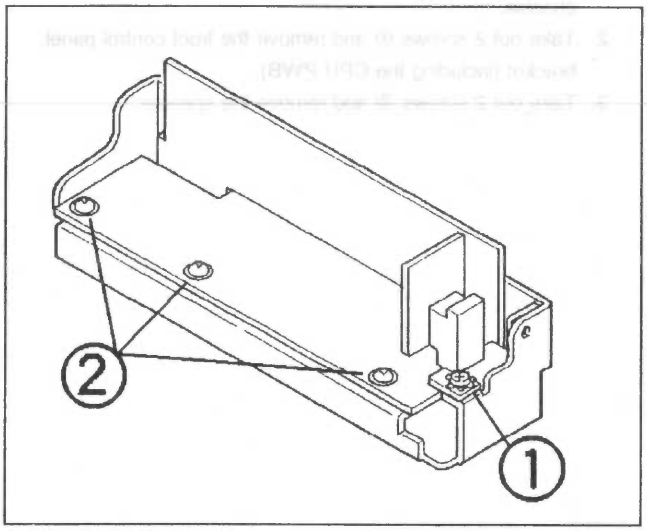
● **CPU - signal PWB jump wires**

Connection

1. Check that the ends of the jump wires are straight and aligned.
2. Use a screwdriver or similar tool to press the portion of the connector labelled Push.(In practice, the wires can be inserted without pressing.)
3. Align the ends of the jump wire with the respective holes of the connector and insert vertically.

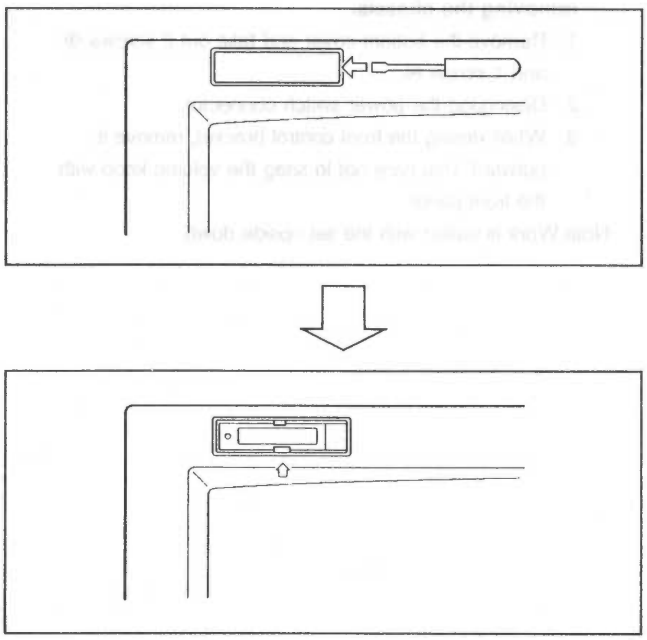
Disconnection

1. Use a screwdriver or similar tool to press the portion of the connector labelled Push.
2. While holding the connector depressed, pull the wires upward to disconnect them.



■ Power switch, front control PWB and CPU PWB

1. Remove the front control bracket (including CPU PWB).
2. Take out 1 screw ① and remove the power switch.
3. Take out 3 screws ② and remove the front control PWB and CPU PWB.
4. Disengage the PWB connectors.



■ Tally PWB

1. While using care not to scratch the front panel, insert a flat blade screwdriver into the edge of the tally cover and remove the cover.
2. Since the tally PWB appears, press the top and bottom tabs downward with the screwdriver.
3. Pull the PWB downward to tilt and remove the PWB.

REPLACEMENT OF CHIP COMPONENT

■CAUTIONS

1. Avoid heating for more than 3 seconds.
2. Do not rub the electrodes and the resist parts of the pattern.
3. When removing a chip part, melt the solder adequately.
4. Do not reuse a chip part after removing it.

■SOLDERING IRON

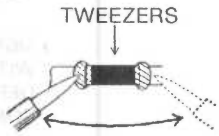
1. Use a high insulation soldering iron with a thin pointed end of it.
2. A 30w soldering iron is recommended for easily removing parts.

■REPLACEMENT STEPS

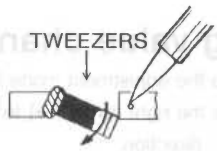
1. How to remove Chip parts

●Resistors, capacitors, etc

(1) As shown in the figure, push the part with tweezers and alternately melt the solder at each end.



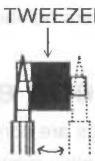
(2) Shift with tweezers and remove the chip part.



●Transistors, diodes, variable resistors, etc

(1) Apply extra solder to each lead.

(2) As shown in the figure, push the part with tweezers and alternately melt the solder at each lead. Shift and remove the chip part.

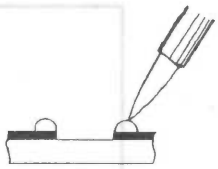


Note: After removing the part, remove remaining solder from the pattern.

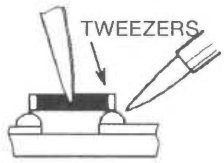
2. How to install Chip parts

●Resistors, capacitors, etc

(1) Apply solder to the pattern as indicated in the figure.



(2) Grasp the chip part with tweezers and place it on the solder. Then heat and melt the solder at both ends of the chip part.

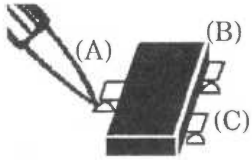


●Transistors, diodes, variable resistors, etc

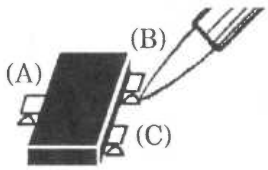
(1) Apply solder to the pattern as indicated in the figure.

(2) Grasp the chip part with tweezers and place it on the solder.

(3) First solder lead A as indicated in the figure.



(4) Then solder leads B and C.



Service menu entry

- If the separately sold remote controller (RM-C550W) is available, this can be used for adjustments. Normally, perform adjustments using the set front control panel.

1. While holding Enter depressed, press Degauss.
2. The letter S appears at the upper left of the screen.
3. While holding Enter depressed, press Menu.
4. The screen display changes to < SERVICE MENU > PLEASE, DON'T TOUCH!
5. Press the left [←] or right arrow [→] to display the service menu.
   If Step 4 state continues for more than 5 seconds without a further operation, the display extinguishes and the mode is released.

Item selection

- While the service main menu is displayed:

1. Press the up [↑] or down arrow [↓] to select the item.
2. After selecting the item, press Enter.
3. The adjustment mode menu is displayed.

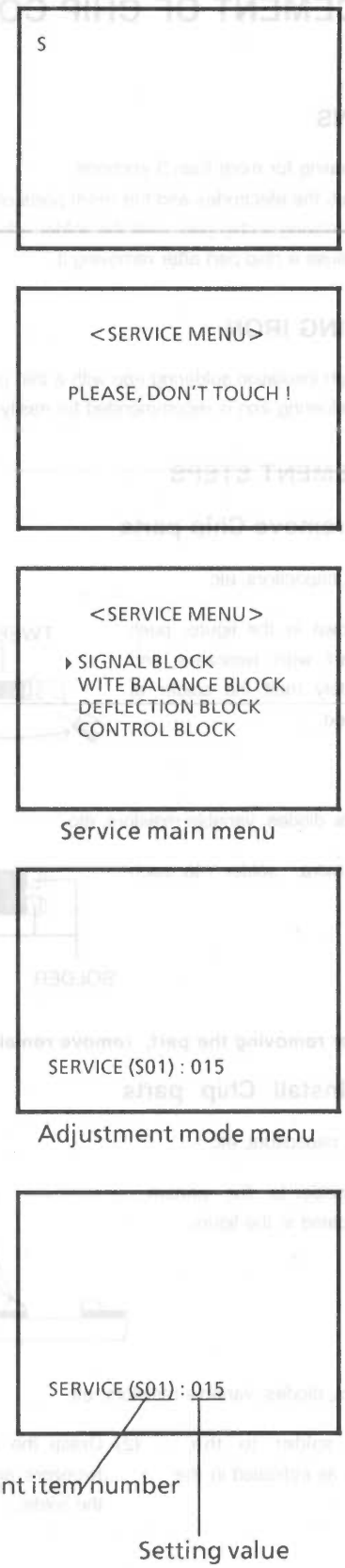
Setting value change

- While the adjustment mode menu is displayed:

1. Press the right arrow [→] to change the setting value in the + direction.
2. Press the left arrow [←] to change the setting value in the - direction.
3. Press the up [↑] or down arrow [↓] to change the adjustment item number.

Service menu exit

1. When settings are completed, press Menu.
2. The service main menu returns.
3. Again press Menu.
4. The screen display extinguishes and the service mode is exited.



■ Signal system settings

No.	Input	Signal	Item	Data type	Variable range	Initial value
S01			Bright	Standard value	0~63	15
S02	Video	NTSC	Chroma	Standard value	0~63	32
S03	Video	NTSC	Phase	Standard value	0~63	32
S04	Video	NTSC	Contrast	Standard value	0~63	32
S05	Video	PAL	Chroma	Standard value	0~63	32
S06	Video	PAL N443	Contrast	Standard value	0~63	32
S07	Video Y/C	N443	Phase	Standard value	0~63	32
S08	Y/C	NTSC	Chroma	Standard value	0~63	32
S09	Y/C	NTSC	Phase	Standard value	0~63	32
S10	Y/C	NTSC PAL N443	Contrast	Standard value	0~63	32
S11	Y/C	PAL	Chroma	Standard value	0~63	32
S12	Color difference	N10/ SMPTE	Chroma	Standard value	0~63	32
S13	Color difference		Contrast	Standard value	0~63	32
S14	RGB		Contrast	Standard value	0~63	32
S15	Video	N443	Chroma	Correction value	0~255	3
S16	Y/C	N443	Chroma	Correction value	0~255	3
S17	Color difference	BETA	Chroma	Correction value	0~255	247
S18			Bright →pulse cross	Correction value	0~255	20
S19			Contrast →pulse cross	Correction value	0~255	236
S20			Bright →underscan	Correction value	0~255	0
S21			Contrast →underscan	Correction value	0~255	252
S22			Bright →16 : 9	Correction value	0~255	0
S23			Contrast →16 : 9	Correction value	0~255	250
S24	Video	SECAM	Chroma	Standard value	0~63	32
S25	Video	SECAM	Contrast	Standard value	0~63	32
S26	Y/C	SECAM	Chroma	Standard value	0~63	32

No.	Input	Signal	Item	Data type	Variable range	Initial value
S27	Y/C	SECAM	Contrast	Standard value	0～63	32
S28			Peak Drive Limit	Fixed value	0～255	45
S29			Control Reg - 1	Fixed value	0～255	193
S30			Control Reg - 2	Fixed value	0～255	0
S31	Video	NTSC,B/W 60	Y Delay	Fixed value	0～255	65
S32	Y/C	NTSC,B/W 60	Y Delay	Fixed value	0～255	73
S33	Video	PAL,B/W 50	Y Delay	Fixed value	0～255	82
S34	Y/C	PAL,B/W 50	Y Delay	Fixed value	0～255	82
S35	Video	N443	Y Delay	Fixed value	0～255	82
S36	Y/C	N443	Y Delay	Fixed value	0～255	82
S37	Video	SECAM	Y Delay	Fixed value	0～255	82
S38	Y/C	SECAM	Y Delay	Fixed value	0～255	82
S39	Color difference		Y Delay	Fixed value	0～255	64

■ White balance settings

No.	Color temperature	Scan	Item	Data type	Variable range	Initial value
W01	9300	Normal	R - Cutoff	Standard value	0～63	37
W02	9300	Normal	G - Cutoff	Standard value	0～63	25
W03	9300	Normal	B - Cutoff	Standard value	0～63	23
W04	9300	Normal	R - Drive	Standard value	0～63	34
W05	9300	Normal	G - Drive	Standard value	0～63	32
W06	9300	Normal	B - Drive	Standard value	0～63	30
W07	6500	Normal	R - Cutoff	Standard value	0～63	48
W08	6500	Normal	G - Cutoff	Standard value	0～63	25
W09	6500	Normal	B - Cutoff	Standard value	0～63	12
W10	6500	Normal	R - Drive	Standard value	0～63	37
W11	6500	Normal	G - Drive	Standard value	0～63	32
W12	6500	Normal	B - Drive	Standard value	0～63	24

No.	Color temperature	Scan	Item	Data type	Variable range	Initial value
W13	3200	Normal	R - Cutoff	Standard value	0～63	Not used(32)
W14	3200	Normal	G - Cutoff	Standard value	0～63	Not used(32)
W15	3200	Normal	B - Cutoff	Standard value	0～63	Not used(32)
W16	3200	Normal	R - Drive	Standard value	0～63	Not used(32)
W17	3200	Normal	G - Drive	Standard value	0～63	Not used(32)
W18	3200	Normal	B - Drive	Standard value	0～63	Not used(32)
W19		Under	R - Cutoff	Correction value	0～255	0
W20		Under	G - Cutoff	Correction value	0～255	0
W21		Under	B - Cutoff	Correction value	0～255	0
W22		Under	R - Drive	Correction value	0～255	0
W23		Under	G - Drive	Correction value	0～255	0
W24		Under	B - Drive	Correction value	0～255	0
W25		16 : 9	R - Cutoff	Correction value	0～255	0
W26		16 : 9	G - Cutoff	Correction value	0～255	0
W27		16 : 9	B - Cutoff	Correction value	0～255	0
W28		16 : 9	R - Drive	Correction value	0～255	0
W29		16 : 9	G - Drive	Correction value	0～255	0
W30		16 : 9	B - Drive	Correction value	0～255	0

■ Deflection system settings

No.	Scan	Input	V. frequency	Item		Variable range	Initial value
D01	Normal	Video	60Hz	V-Size	→Standard value	0～63	38
D02	Normal	Video	60Hz	V-Shift	→Standard value	0～63	32
D03	Normal	Video	60Hz	V-Linearity	→Standard value	0～15	7
D04	Normal	Video	60Hz	S-Correction	→Standard value	0～15	15
D05	Normal	Video	60Hz	H-Size	→Standard value	0～63	26
D06	Normal	Video	60Hz	H-Shift	→Standard value	0～63	32
D07	Normal	Video	60Hz	Pin-AMP	→Standard value	0～63	41
D08	Normal	Video	50Hz/60Hz	HV-COMP-V	→Standard value	0～7	7
D09	Normal	Video	50Hz/60Hz	HV-COMP-H	→Standard value	0～7	0
D10	Normal	Video	50Hz	V-Size	→Standard value	0～255	40
D11	Normal	Video	50Hz	V-Shift	→Standard value	0～255	29
D12	Normal	Video	50Hz	V-Linearity	→Standard value	0～255	8
D13	Normal	Video	50Hz	S-Correction	→Standard value	0～255	15
D14	Normal	Video	50Hz	H-Size	→Standard value	0～255	29
D15	Normal	Video	50Hz	H-Shift	→Standard value	0～255	32
D16	Normal	Video	50Hz	Pin-AMP	→Standard value	0～255	40
D17	Under	Video	50Hz/60Hz	V-Size	→Correction value	0～255	230
D18	Under	Video	50Hz/60Hz	V-Shift	→Correction value	0～255	0
D19	Under	Video	50Hz/60Hz	V-Linearity	→Correction value	0～255	0
D20	Under	Video	50Hz/60Hz	S-Correction	→Correction value	0～255	0
D21	Under	Video	50Hz/60Hz	H-Size	→Correction value	0～255	0
D22	Under	Video	50Hz/60Hz	H-Shift	→Correction value	0～255	0
D23	Under	Video	50Hz/60Hz	Pin-AMP	→Correction value	0～255	2
D24	Under	Video	50Hz/60Hz	HV-COMP-V	→Correction value	0～255	0
D25	Under	Video	50Hz/60Hz	HV-COMP-H	→Correction value	0～255	0
D26	16 : 9	Video	50Hz/60Hz	V-Size	→Correction value	0～255	0
D27	16 : 9	Video	50Hz/60Hz	V-Shift	→Correction value	0～255	0
D28	16 : 9	Video	50Hz/60Hz	V-Linearity	→Correction value	0～255	0
D29	16 : 9	Video	50Hz/60Hz	S-Correction	→Correction value	0～255	0
D30	16 : 9	Video	50Hz/60Hz	H-Size	→Correction value	0～255	0

No.	Scan	Input	V. frequency	Item	Variable range	Initial value
D31	16 : 9	Video	50Hz/60Hz	H-Shift →Correction value	0～255	0
D32	16 : 9	Video	50Hz/60Hz	Pin-AMP →Correction value	0～255	0
D33		RGB	60Hz	V-Shift →Correction value	0～255	0
D34		RGB	60Hz	H-Shift →Correction value	0～255	0
D35		RGB	50Hz	V-Shift →Correction value	0～255	0
D36		RGB	50Hz	H-Shift →Correction value	0～255	0
D37	Pulse Cross		50Hz/60Hz	V-Shift →Correction value	0～255	0
D38	Pulse Cross		50Hz/60Hz	H-Shift →Correction value	0～255	0
D39	External SYNC		50Hz/60Hz	V-Shift →Correction value	0～255	0
D40	External SYNC		50Hz/60Hz	H-Shift →Correction value	0～255	0
D41	TILT		50Hz/60Hz	TILT →Fixed value	0～255	16
D42	U/L Cornner Pin		50Hz/60Hz	U/L CORNER PIN →Fixed value	0～255	255
D43	V-BOW/V-ANGLE		50Hz/60Hz	V-BOW/V-ANGLE →Fixed value	0～255	136

■ Control system setting

No.	Item	Variable range	Initial value	Remarks
C01	Color TEMP. Default	0～255	1	Color temperature initial setting 1:6500K,2:9300K
C02	Menu display time	0～255	0	Menu display time 0: extinguish after 5 minutes, 1: continuous
C03	OSDC Color	0～255	7	On-screen color setting, power off/on needed after changing (see table next page)
C04	OSDC H.Position	0～255	5	On-screen H. position 0 - 15
C05	OSDC V.Position (60Hz)	0～255	1	On-screen V. position (60 Hz) 0 - 15
C06	OSDC V.Position (50Hz)	0～255	2	On-screen V. position (50 Hz) 0 - 15
C07	Bright Data to MAX	0～255	20	Effective brightness range from center detent to maximum
C08	Bright Data to MIN	0～255	20	Effective brightness range from center detent to minimum

No.	Item	Variable range	Initial value	Remarks
C09	Chroma Data to MAX	0~255	30	Effective chroma range from center detent to maximum
C10	Chroma Data to MIN	0~255	50	Effective chroma range from center detent to minimum
C11	Contrast Data to MAX	0~255	20	Effective contrast range from center detent to maximum
C12	Contrast Data to MIN	0~255	20	Effective contrast range from center detent to minimum
C13	Phase Data to MAX	0~255	30	Effective phase range from center detent to maximum
C14	Phase Data to MIN	0~255	30	Effective phase range from center detent to minimum
C15	Signal	0~255	10	Signal Status display check time when signal change or display after data x 32 ms when counter is 0 - 127, not displayed when 127 - 255
C16	System detect	0~255	0	0: automatic, 1: 3.58 MHz, 2: 4.43 MHz

No.	On-screen color setting data	No.	On-screen color setting data
129	Blue	0	Black (darkens during blue check)
130	Green	1	Black (brightens during blue check)
131	Aqua	2	Green (darkens during blue check)
132	Red	3	Green (brightens during blue check)
133	Magenta	4	Red (darkens during blue check)
134	Yellow	5	Red (brightens during blue check)
135	White	6	Orange (darkens during blue check)
136	Black	7	Orange (brightens during blue check)

Set-up menu entry

- If the separately sold remote controller (RM-C550W) is available, this can be used for adjustments. Normally, perform adjustments using the set front control panel.

1. While holding Enter depressed, press Menu.
2. The Set-up menu is displayed on the screen.

Item selection

■ Size/centering, white balance adjust, remote select

- Size/centering items are displayed only when RGB input is selected.

1. Press the up [↑] or down arrow [↓] to select Size/Centering items.
2. After selecting the item, press Enter.
3. The adjustment mode menu is displayed.
4. Again press Enter to display the adjustment mode sub-menu for each adjustment item (select adjustment item with up [↑] or down arrow [↓]).
5. Press Menu to display the original adjustment mode menu.
6. Perform in the same manner for White balance adjust and Remote select.

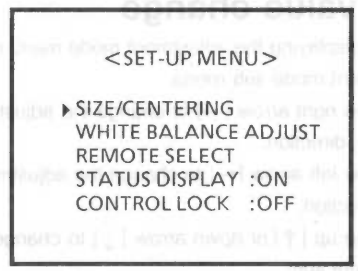
■ Status display

1. Press the up [↑] or down arrow [↓] to select the status display items.
2. Press the left [←] or right arrow [→] to select on/off.

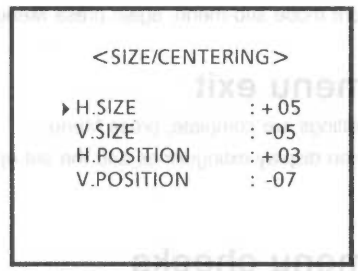
■ Control lock

- Except for sound volume, all control operations are inhibited from the front control buttons, Phase, Chroma, Bright and Contrast controls, and the remote controller (sound volume remains operational).

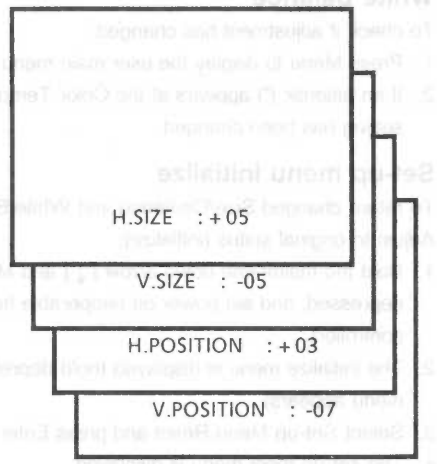
1. Press the up [↑] or down arrow [↓] to select Control Lock.
2. Press the left [←] or right arrow [→] to select on/off.
3. The status just prior to selecting On is held and after exiting the set-up main menu, control adjustment is inhibited.
4. To release the control lock, press Enter and Menu to display the set-up main menu, then set Control Lock to Off.



Set-up main menu



Adjustment mode menu



Adjustment mode sub-menu

H.SIZE→V.SIZE→H.POSITION→V.POSITION

Setting value change

- Set for displaying the adjustment mode menu or the adjustment mode sub-menu.

1. Press the right arrow [→] to change the adjustment value in the + direction.
2. Press the left arrow [←] to change the adjustment value in the - direction.
3. Press the up [↑] or down arrow [↓] to change the adjustment item.
4. Press Menu to return the set-up main menu. (At the adjustment mode sub-menu, again press Menu.)

Set-up menu exit

1. When settings are complete, press Menu.
2. The screen display extinguishes and the set-up menu is exited.

Set-up menu checks

■ White balance

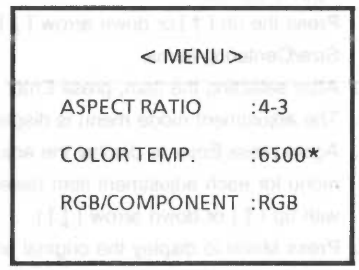
To check if adjustment has changed:

1. Press Menu to display the user main menu.
2. If an asterisk (*) appears at the Color Temp. item, the setting has been changed.

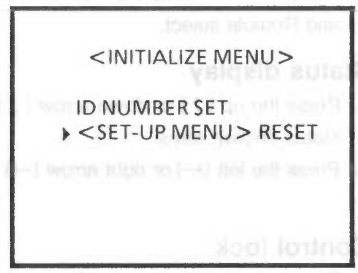
■ Set-up menu initialize

To return changed Size/Centering and White Balance Adjust to original status (initialize);

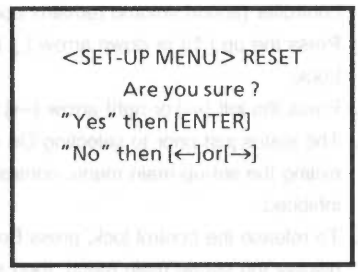
1. Hold the mainframe down arrow [↓] and Menu depressed, and set power on (inoperable from remote controller).
2. The initialize menu is displayed (hold depressed until menu appears).
3. Select Set-up Menu Reset and press Enter.
4. The set-up reset menu is displayed.
5. Press Enter to return the standard settings. Note that Remote Elect, Status Display and Control Lock are initialized and ID No. is cleared to 0.



User main menu



Initialize menu



Set-up reset menu

Memory IC replacement notes

This model uses non-volatile memory ICs. When these are replaced, the data must be reset.
Video and deflection system data are stored in IC103. If this is replaced without entering the data, a normal picture will not be obtained. When replacing, be sure to use an IC(ST24BM-1400) containing the (initial value) data.

■ Set-up menu record

Press Menu and at the menu display, check if an asterisk (*) appears after Color Temp. If the asterisk appears, the user has set the values according to personal preference. To the extent possible, make a memo of the setting values before replacing the IC.

■ IC replacement steps

1. To the extent possible, make a memo of the set-up menu and adjustment mode menu contents.
2. Switch off the power and disconnect the power cord from the outlet.
3. Replace IC103.
4. Reconnect the power cord to the outlet and switch power on.
5. Refer to the memo and enter the setting values.
6. Perform adjustments according to the adjustment items.

SERVICE ADJUSTMENTS

PRIOR TO STARTING ADJUSTMENT

1. Supply power to the set and measuring instruments and allow to warm up for at least 30 minutes.
2. Confirm the proper AC power voltage is being supplied.
3. Use care not to disturb controls and switches not mentioned in the adjustment items.
4. Refer to adjustment settings and set user operated controls (bright, contrast, hue, tint, etc.) to the indicated positions.

TOOLS AND FIXTURES FOR ADJUSTMENT

- DC voltmeter (digital voltmeter)
- Oscilloscope
- Signal generator (PAL/NTSC systems)
  - Color bar and split color bar patterns
  - Crosshatch pattern
  - Cross pattern
  - Red raster pattern
  - Green raster pattern
  - Blue raster pattern
  - Philips pattern (including R-Y and B-Y) — Desirable
  - TV resolution pattern — Desirable
- Remote control unit (RM-C550W) — Adjustments easier if available
- Color analyzer — Desirable
- High voltage meter — Desirable

ADJUSTMENT SETTINGS

1. **Front controls**

CONTRAST	Detent
CONTRAST	Detent
BRIGHT	Detent
CHROMA	Detent
PHASE	Detent
VOLUME MIN	Detent

2. **Front switches**

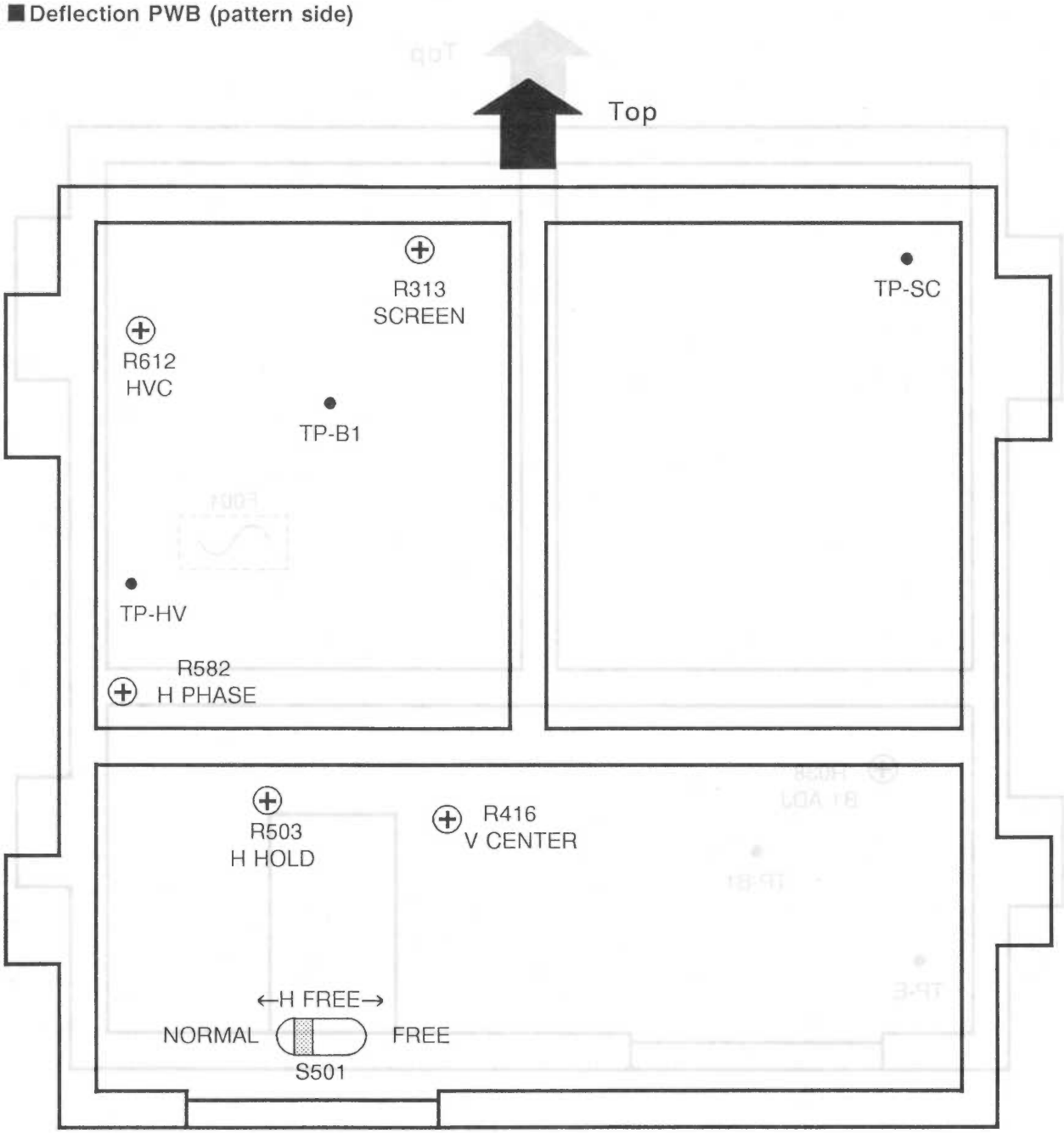
INPUT SELECT	VIDEO A	
EXT SYNC	INT	Switched not depressed
UNDER SCAN	OVER	〃
PULSE CROSS	OFF	〃
COLOR OFF	COLOR	〃
BLUE CHECK	OFF	〃
MEMORY MODE	OFF	〃

3. **Menu screen**

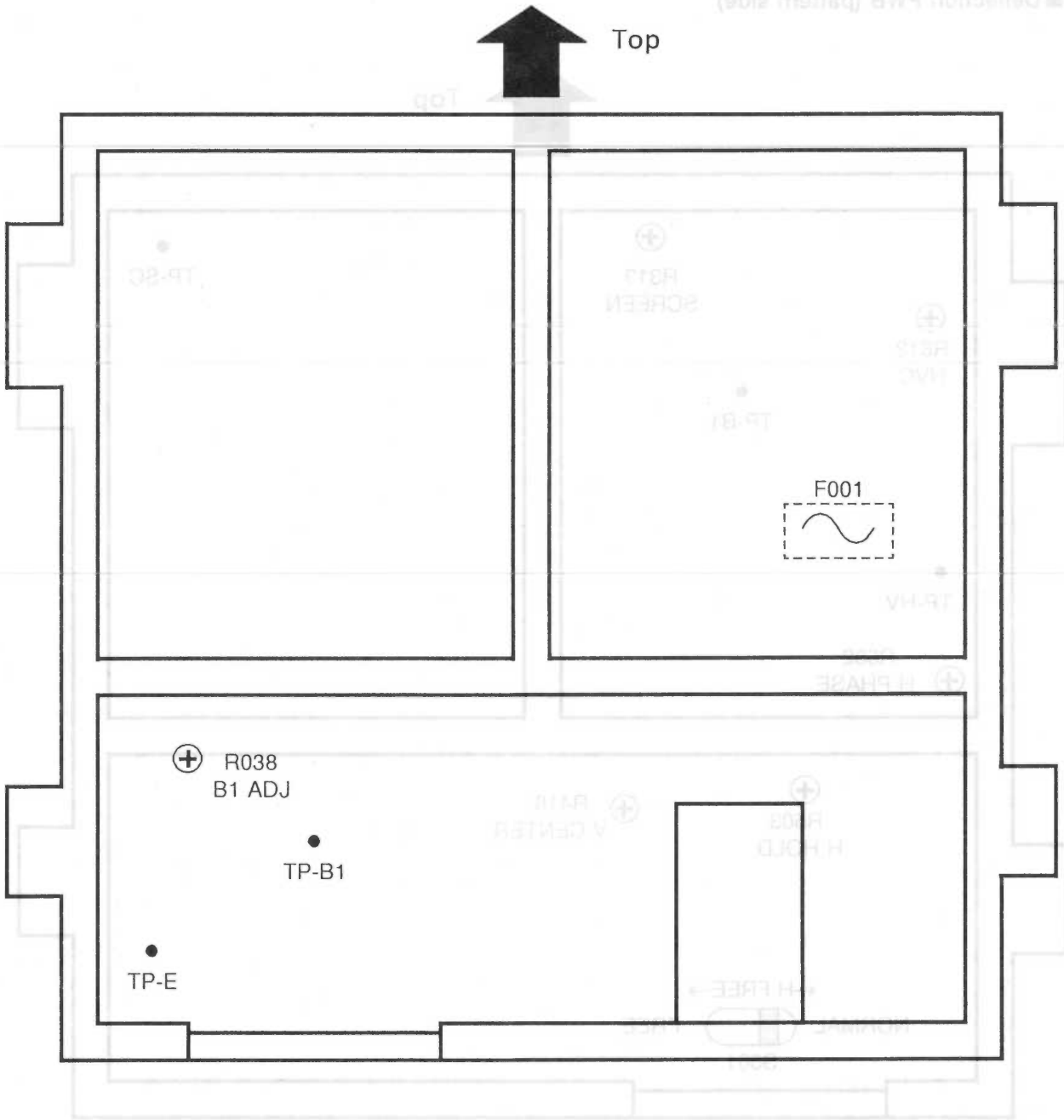
ASPECT RATIO	4 - 3
FILTER SELECT	COMB
PEAKING FREQ.	2.6MHz
PEAKING LEVEL	0dB
AFC	NORMAL
COLOR TEMP.	9300
NTSC SETUP	0
COMPO. LEVEL	SMPTE
RGB/COMPONENT	RGB

ADJUSTMENT LOCATIONS

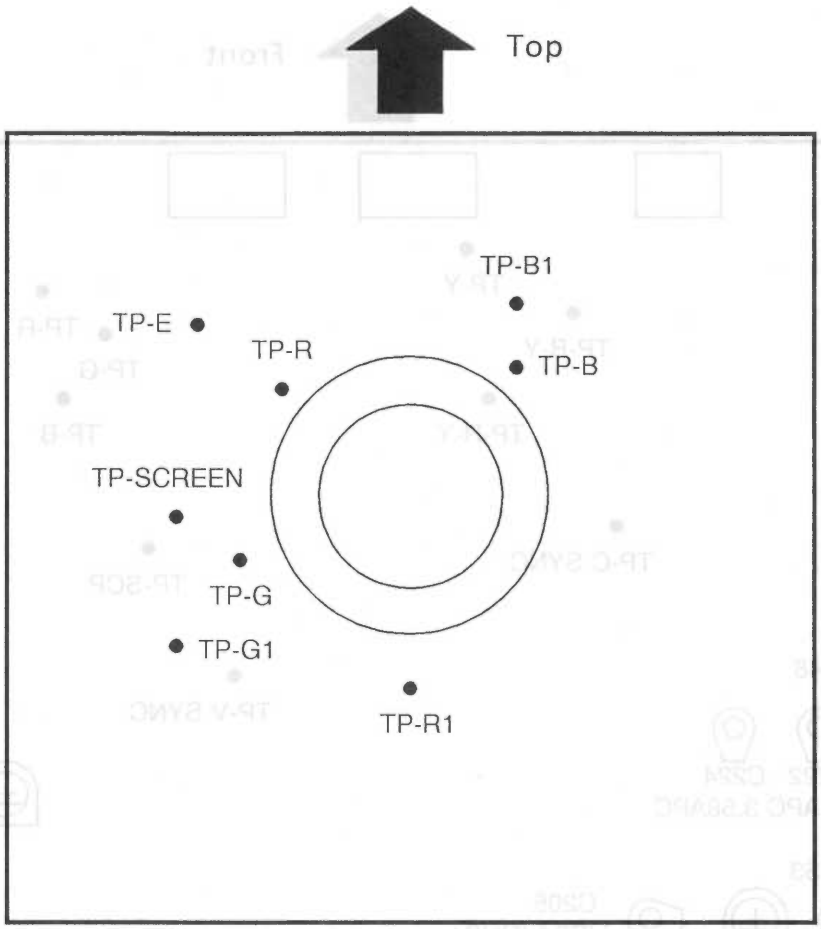
■ Deflection PWB (pattern side)



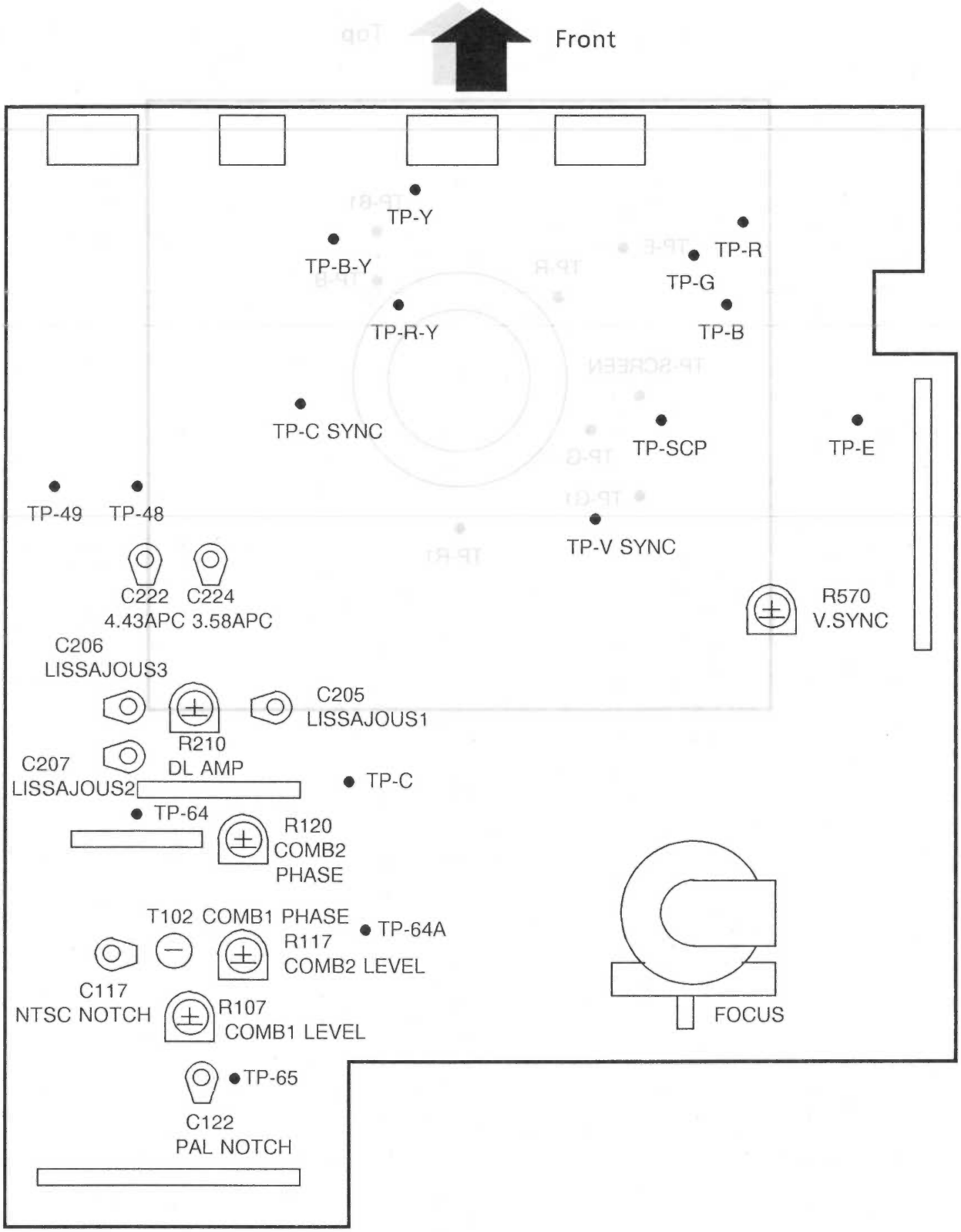
■ Power PWB (pattern side)



■CRT socket PWB (pattern side)

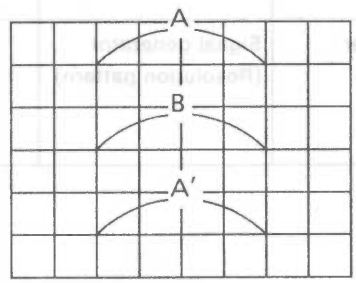


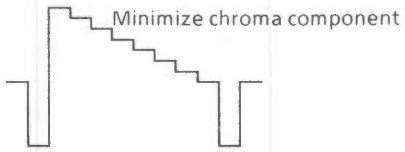
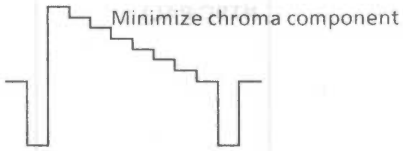
■Signal PWB (parts side)

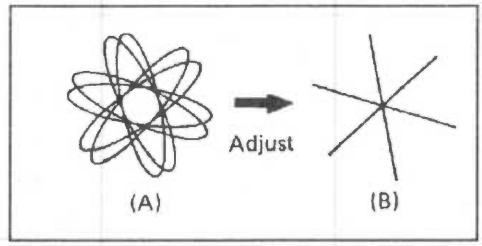
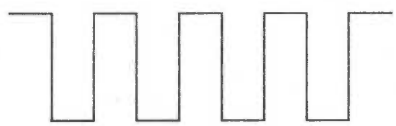


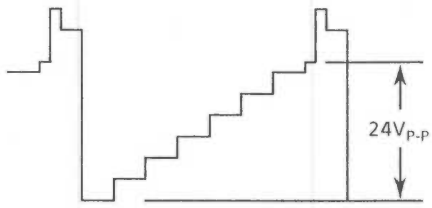
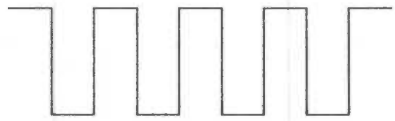
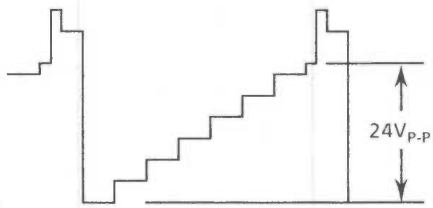
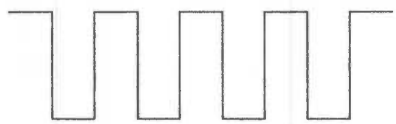
ADJUSTING STEP

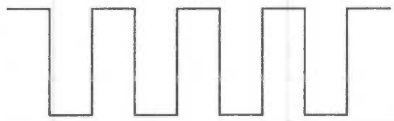
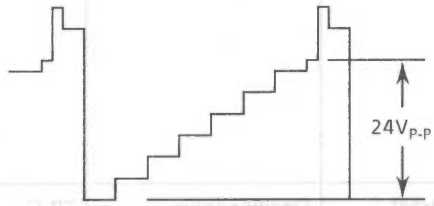
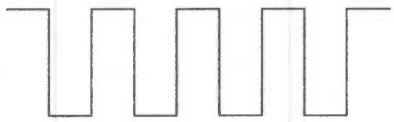
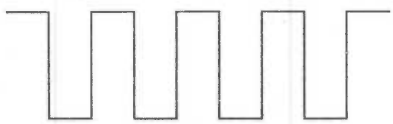
Item	Test equipment	Test points	Adjustment locations	Adjustment procedure
B1 voltage check	Voltmeter Variable transformer	TP-B1 TP-E	R038 (B1 adj) [Power PBW]	1. Set power supply voltage to 90 V. 2. Set contrast and bright to minimum and produce a black screen. 3. Connect voltmeter between TP-B1 and TP-E. Switch on power. 4. Adjust R038 (B1 adj) to set the B1 voltage to 54.0 ± 0.2 V. 5. Set the power supply voltage to 132 V. 6. Check for B1 voltage of 54.0 ± 0.2 V. 7. Return the contrast and bright controls to the detent positions.
High voltage check	High voltage meter Signal generator (All-black signal)			1. Set the Ext Sync switch to Ext. 2. Connect a synchronization signal to Ext Sync. 3. When the raster appears, reduce the bright control. 4. Connect the high voltage meter to the anode and check for 22.5 - 23.5 KV. 5. Return the Ext Sync switch to Int.
v.deflection center	Signal generator (Resolution pattern)		D02(NTSC V SHIFT) [SERVICE MENU] R416(V CENTER) [Deflection PWB]	• Perform after purity adjustment. • Adjust deflection yoke inclination. 1. At service menu, set D02 to 32. 2. Adjust R416 (V phase) to align the picture center with the CRT center.
Screen	Oscilloscope Signal generator (Color bar)	TP-SC	R313 (SCREEN) [Deflection PWB]	1. Connect oscilloscope to TP-SC. 2. Adjust R313 (Screen) to set the screen voltage to 450 ± 10 V.
Focus	Signal generator (Resolution pattern)		FOCUS VR [HVT]	1. Adjust the Focus VR for optimum focus where moire is not apparent. 2. Darken the picture and and adjust the focus by turning counter-clockwise from the position where focus is poor. 3. Alternately repeat the above steps to obtain the optimum position. • Focus can be adjusted easily by displaying the menu.
H frequency	Signal generator (Resolution pattern)		D06(H SHIFT) [SERVICE MENU] S501 (H FREE SW) R503(H HOLD) [Deflection PWB]	1. At the service menu, set D06 to 32. 2. Set S501 (H Free SW) to Free. 3. Adjust screen sync with R503 (H Hold). 4. Set S501 (H Free SW) to Normal. 5. Change the signal, then return the previous signal. Confirm absence of sync disturbance.
H center (NTSC)	Signal generator (Resolution pattern)		D06(H SHIFT) [SERVICE MENU] R582(H PHASE) [Deflection PWB]	1. At the service menu, set D06 to 32. 2. Adjust R582 (H Phase) to align the picture center with the CRT center.

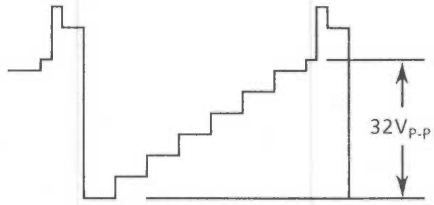
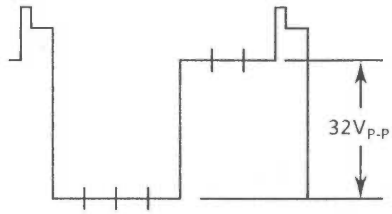
Item	Test equipment	Test points	Adjustment locations	Adjustment procedure
HVC	Voltmeter Signal generator (All-black signal)	TP-HV	R612(HVC) [Deflection PWB]	1. Set Ext Sync to Ext and supply a horizontal sync signal input. 2. When the raster appears, reduce the Bright control. 3. Connect the voltmeter to TP-HV. 4. Adjust R612 (HVC) for 2.0 ± 0.1 V.
H gain (NTSC)	Signal generator (Resolution or crosshatch pattern)		D05(H SIZE) D21(H SIZE) D22(H SHIFT) [SERVICE MENU]	1. At the service menu, set D05 to adjust the horizontal size to 95 %. 2. Set the Scan Size to Under. 3. Set D21 to 00. 4. Set D22 to 00. 5. Return the Scan Size to normal.
H center H gain (PAL)	Signal generator (Resolution or crosshatch pattern)		D15(H SHIFT) D14(H SIZE) [SERVICE MENU]	1. Adjust D15 to align the picture center with the CRT center. 2. Adjust D14 to set the horizontal size to 95 %.
V gain, V center, V linearity (NTSC)	Signal generator (Resolution pattern)		D03(V LINEARITY) D01(V SIZE) D17(V SIZE) D19(V LINEARITY) D18(V SHIFT) [SERVICE MENU]	1. Check that the horizontal line of the video signal center is at the CRT center (if shifted, adjust R416). 2. Adjust the picture vertical linearity (scan ratio) with D03. 3. Adjust the screen top and bottom edges to 95 % with D01. 4. Set the Scan Size to Under. 5. Set D17 to 230. 6. Set D19 to 00. 7. Set D18 to 00. 8. Return the Scan Size to normal.
V gain, V center, V linearity (PAL)	Signal generator (Resolution pattern)		D11(V SHIFT) D12(V LINEARITY) D10(V SIZE) [SERVICE MENU]	1. Adjust D11 to align the video signal center with the CRT center. 2. Adjust the picture vertical linearity (scan ratio) with D12. 3. Adjust the screen top and bottom edges to 95 % with D10.
Side pincushion (NTSC/PAL)	Signal generator (Crosshatch NTSC/PAL)		D07(PIN AMP) D23(PIN AMP) D16(PIN AMP) [SERVICE MENU]	1. Adjust side pincushion with D07 so that A = B. 2. Set the Scan Size to Under. 3. Adjust side pincushion with D23 so that A = B. 4. Supply a PAL crosshatch input. 5. Return the Scan Size to normal. 6. Adjust side pincushion with D16 so that A = B. 

Item	Test equipment	Test points	Adjustment locations	Adjustment procedure
Comb filter (NTSC)	Oscilloscope Signal generator (Color bar)	TP-64A TP-64B	R107 (COMB1 LEVEL) T102 (COMB1 PHASE) R117(COMB2 LEVEL) R120(COMB2 PHASE) [Signal PWB]	1. Set the menu Filter Select to Comb. 2. Connect oscilloscope to TP-64A. 3. Alternately adjust R107 and T102 to minimize the chroma component.  Minimize chroma component 4. Connect oscilloscope to TP-64. 5. Alternately adjust R117 and R120 to minimize the chroma component.  Minimize chroma component
Notch filter	Oscilloscope Signal generator (Color bar NTSC/PAL)	TP-65	C117 (NTSC NOTCH) C122 (PAL NOTCH) [Signal PWB]	1. Set the menu Filter Select to Notch. 2. Connect oscilloscope to TP-65. 3. Adjust C117 to minimize the chroma component. 4. Supply a PAL color bar input. 5. Adjust C122 to minimize the chroma component.  Minimize chroma component
Color sync (NTSC)	Signal generator (Color bar) 10 KΩ resistor Shorting fixture		C222(3.58APC) [Signal PWB]	1. Connect a 10 KΩ resistor between IC201 pin 13 and +B (12 V). 2. Connect a shorting fixture between IC201 pin 14 and ground. 3. Adjust to synchronize the color bar with C222. 4. Remove the resistor and shorting fixture. 5. Change the input signal, then return the color bar. Confirm absence of sync disturbance.

Item	Test equipment	Test points	Adjustment locations	Adjustment procedure
APC (PAL)	Oscilloscope Signal generator (Color bar, split color bar) 10 KΩ resistor Shorting fixture	TP-48 TP-49	C224(4.43APC) R210(DL AMP) C206(LISSAJOUS 3) C207(LISSAJOUS 2) C209 [Signal PWB]	1. Connect a 10 KΩ resistor between IC201 pin 13 and +B (12 V). 2. Connect a shorting fixture between IC201 pin 14 and ground. 3. Adjust to synchronize the color bar with C224. 4. Remove the resistor and shorting fixture. 5. Connect an oscilloscope to TP-48 and TP-49 and display X-Y coordinates. 6. Adjust R210 and C206 to obtain the waveform indicated in the figure. If inadequate, adjust C207 and C209.  7. Supply a PAL split color bar input and adjust C224 to minimize coloration in the R-Y and B-Y components.
Pulse cross	Signal generator (Color bar NTSC/PAL)		R570(V.SYNC) [Signal PWB]	1. Set the pulse cross switch to on. 2. Adjust R570 to eliminate luminance and burst signal variation in the V blanking period. 3. Supply a PAL color bar input. 4. Confirm absence of luminance and burst signal variation in the V blanking period. 5. Again supply an NTSC color bar input and again confirm absence of luminance and burst signal variation in the V blanking period. 6. If variation is present, again adjust R570. 7. Set the pulse cross switch to off.
Chroma and phase (Video input, NTSC)	Oscilloscope Signal generator (Color bar)	TP-B [CRT socket PWB]	S02(CHROMA) S03(PHASE) [SERVICE MENU]	1. Supply an NTSC color bar to Video A. 2. Set the menu Filter Select to Notch. 3. Connect oscilloscope to TP-B. 4. Alternately adjust S02 and S03 to obtain a straight line waveform. 5. Set Filter Select to Comb. 

Item	Test equipment	Test points	Adjustment locations	Adjustment procedure
Contrast (Video input, NTSC)	Oscilloscope Signal generator (Color bar)	TP-G [CRT socket PWB]	S04 (CONTRAST) [SERVICE MENU]	1. Supply an NTSC color bar input to Video A. 2. Set the Color Off switch to off. 3. Connect oscilloscope to TP-G. 4. Adjust the waveform level to 24 Vp-p with S04. 5. Set the Color Off switch to Color. 
Chroma (Video input, PAL)	Oscilloscope Signal generator (Color bar)	TP-B [CRT socket PWB]	S05 (CHROMA) [SERVICE MENU]	1. Supply an NTSC color bar input to Video A. 2. Connect oscilloscope to TP-G. 3. Adjust S05 to obtain a straight line waveform. 
Contrast (Video input, PAL)	Oscilloscope Signal generator (Color bar)	TP-G [CRT socket PWB]	S06 (CONTRAST) [SERVICE MENU]	1. Supply an NTSC color bar input to Video A. 2. Set the Color Off switch to off. 3. Connect oscilloscope to TP-G. 4. Adjust the waveform level to 24 Vp-p with S06. 5. Set the Color Off switch to Color. 
Phase (Video input,NTSC 4.43)	Oscilloscope Signal generator (Color bar NTSC 4.43)	TP-B [CRT socket PWB]	S07 (PHASE) [SERVICE MENU]	1. Supply an NTSC 4.43 color bar input to Video A. 2. Connect oscilloscope to TP-G. 3. Adjust S07 to obtain a straight line waveform. 

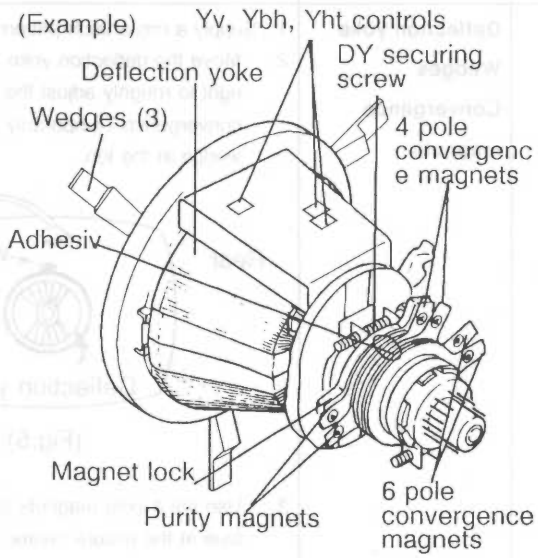
Item	Test equipment	Test points	Adjustment locations	Adjustment procedure
Chroma and phase (Y/C input, NTSC)	Oscilloscope Signal generator (Color bar)	TP-B [CRT socket PWB]	S08 (CHROMA) S09(PHASE) [SERVICE MENU]	1. Supply an NTSC color bar input to Y/C In. 2. Set the menu Filter Select to Notch. 3. Connect oscilloscope to TP-B. 4. Alternately adjust S08 and S09 to obtain a straight line waveform. 5. Set Filter Select to Comb. 
Contrast (Y/C input, NTSC)	Oscilloscope Signal generator (Color bar)	TP-G [CRT socket PWB]	S10 (CONTRAST) [SERVICE MENU]	1. Supply an NTSC color bar input to Video A. 2. Set the Color Off switch to off. 3. Connect oscilloscope to TP-G. 4. Adjust the waveform level to 24 Vp-p with S10. 5. Set the Color Off switch to Color. 
Chroma (Y/C input, PAL)	Oscilloscope Signal generator (Color bar)	TP-B [CRT socket PWB]	S11 (CHROMA) [SERVICE MENU]	1. Supply a PAL color bar input to Video A. 2. Connect oscilloscope to TP-B. 3. Adjust S11 to obtain a straight line waveform. 
Chroma (Component input, NTSC)	Oscilloscope Signal generator (Color bar)	TP-B [CRT socket PWB]	S12 (CHROMA) [SERVICE MENU]	1. Set the menu RGB/Component to Component. 2. Supply an NTSC color bar input to Component In. 3. Connect oscilloscope to TP-B. 4. Adjust S12 to obtain a straight line waveform. 5. Return the menu RGB/Component to original setting. 

Item	Test equipment	Test points	Adjustment locations	Adjustment procedure
Contrast (Component input, NTSC)	Oscilloscope Signal generator (Color bar)	TP-G [CRT socket PWB]	S13 (CONTRAST) [SERVICE MENU]	1. Set the menu RGB/Component to Component. 2. Supply an NTSC color bar input to Component In. 3. Set the Color Off switch to off. 4. Connect oscilloscope to TP-G. 5. Adjust the waveform level to 32 Vp-p with S13. 6. Set the Color Off switch to Color. 7. Return the menu RGB/Component to original setting. 
Contrast (RGB input, NTSC)	Oscilloscope Signal generator (Color bar)	TP-G [CRT socket PWB]	S14 (CONTRAST) [SERVICE MENU]	1. Supply an NTSC color bar input to RGB In. 2. Connect oscilloscope to TP-G. 3. Adjust the waveform level to 32 Vp-p with S14. 
Color temperature (9300 K)	Signal generator (Resolution pattern, color bar) Color analyzer or color temperature meter		C11 (CHROMA DATA TO MAX) C16 (SYSTEM DETECT) W01 (R CUTOFF) W02 (G CUTOFF) W03 (B CUTOFF) W04(R DRIVE) W05(G DRIVE) W06(B DRIVE) [SERVICE MENU]	1. Supply a resolution pattern input. 2. Check that the menu Color Temp. is 9300. 3. Set the Color Off switch to off. 4. Set W01 to 18, W03 to 21, W05 to 32, and W02 to 25. 5. Adjust W04 and W06 for the specified color temperature (reference: W04 = 25, W06 = 25) (X = 0.283, Y = 0.297) 6. Supply a color bar input (black and white). 7. Check for proper white balance tracking. If deviated in the dark components, adjust with W01 and W03. • Adjustment with color temperature meter: Apply the sensor to the CRT, adjust and measure. If deviated, repeatedly adjust and measure to obtain the specified color temperature.

Item	Test equipment	Test points	Adjustment locations	Adjustment procedure
Color temperature (6500 K)	Signal generator (Resolution pattern, color bar) Color analyzer or color temperature meter		W07 (R CUTOFF) W09 (B CUTOFF) W10(R DRIVE) W11 (G DRIVE) W12(B DRIVE) [SERVICE MENU]	1. Supply a resolution pattern input. 2. Set the menu Color Temp. to 6500. 3. Set the Color Off switch to off. 4. Set W07 to 25, W09 to 11, and W08 to 25. 5. Set W11 to 32. 6. Adjust W10 and W12 for the specified color temperature (reference: W10 = 28, W12 = 21) (X = 0.313, Y = 0.329) 7. Supply a color bar input (black and white). 8. Check for proper white balance tracking. If deviated in the dark components, adjust with W07 and W09. 9. Return the menu Color Temp. to original setting. • Adjustment with color temperature meter: Apply the sensor to the CRT, adjust and measure. If deviated, repeatedly adjust and measure to obtain the specified color temperature.
Bright	Signal generator (Split color bar)		S01 (BRIGHT) [SERVICE MENU]	1. Adjust S01 to where the split color 0 % black component faintly brightens. 2. Supply another signal and confirm absence of black deviation.

Item	Test equipment	Test points	Adjustment locations	Adjustment procedure
Purity adjustment	Degaussing coil Signal generator(green raster, red raster,blue raster , cross pattern signals)		Purity magnets Convergence magnets	1. Be sure to degauss using the degaussing coil. 2. Carefully remove the wedges. 3. Peel the adhesive from the 6 magnets to allow turning the magnets. 4. Supply an green raster signal input. 5. Loosen the deflection yoke securing screw and slide the yoke fully rearward to produce a red circle display. 6. Overlap the long with short tabs of the 2 purity magnets and position these horizontally.

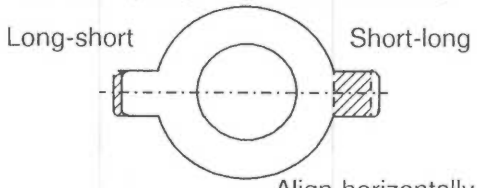
(Example)



(Fig.1)

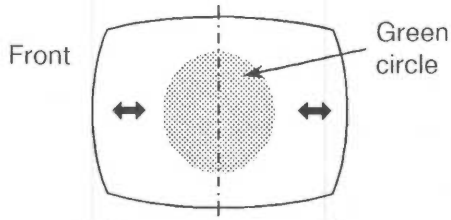
Note: Do not disturb Yv, Ybh and Yht controls.

*Set the 2 purity magnets horizontally.



(Fig.2)

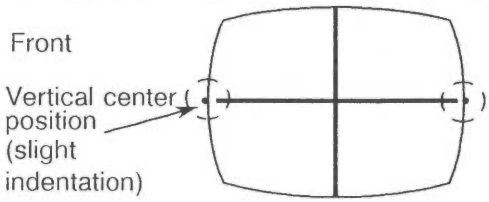
7. Adjust the rotational angle between the tabs to produce a green circle at the center of the screen.



Set the green area at the

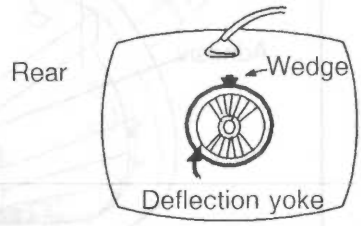
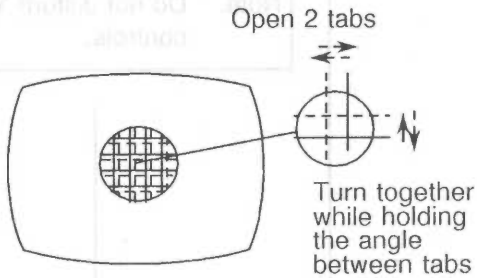
(Fig.3)

8. Supply a cross pattern input and check for deviation of the vertical center position.If deviated, while maintaining the angle between the tabs, rotate the magnets to center the vertical position to the extent possible.

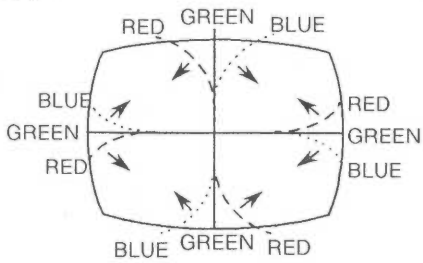


Set the indentations near the horizontal line(tolerance about ± 5 mm)

(Fig.4)

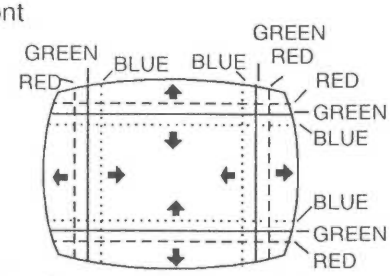
Item	Test equipment	Test points	Adjustment locations	Adjustment procedure
				9. Repeat steps 7 and 8. 10. Supply an all green signal input and shift the deflection yoke forward to where he overall screen is a green single color. 11. Also check the red and blue single color rasters. 12. Suitably tighten the deflection yoke securing screw to prevent forward to rearward shifting.
Static (center) convergence adjustment	Signal generator(crosshatch)		Deflection yoke Wedges Convergence magnets	1. Supply a crosshatch pattern input. 2. Move the deflection yoke up, down, left and right to roughly adjust the perimeter convergence.Temporarily secure with one wedge at the top.  (Fig.5) 3. Use the 4 pole magnets to overlap red and blue at the picture center to produce magenta. 4. Use the 6 pole magnets to overlap the green lines with the magenta. 5. If required, repeat steps 1 and 2.  (Fig.6)

<table>
<tr><th>Item</th><th>Test equipment</th><th>Test points</th><th>Adjustment locations</th><th>Adjustment procedure</th></tr>
<tr><td>Dynamic (perimeter) convergence adjustment</td><td>Signal generator(crosshatch)</td><td></td><td>Wedges
Deflection yoke</td><td>1. Supply a crosshatch pattern input.
2. Remove the wedge temporarily securing the deflection yoke.
3. Wobble the deflection yoke vertically and set the convergence deviation as indicated in Fig.7.Again temporarily secure by inserting a wedge at the top.
4. Wobble the deflection yoke left and right and set the convergence deviation as indicated in Fig.8.
5. Alternately repeat steps 2 and 3 and adjust for minimum convergence deviation.

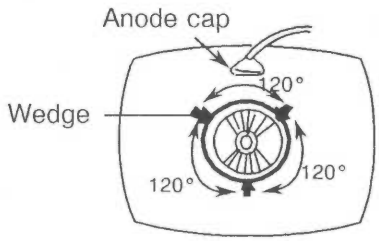
Front
 

Arrow directions when yoke is tilted upward
(opposite directions when tilted downward)

(Fig.7)

Front
 

Arrow directions when yoke is tilted rightward
(opposite directions when tilted leftward)

(Fig.8)</td></tr>
<tr><td>After completing convergence adjustment</td><td>Double sided tape
Adhesive</td><td></td><td>Wedges
Magnet lock</td><td>1. Insert the wedges as shown in Fig.9.
 

Securing with 3 wedges

(Fig.9)

Note: Double sided tape is applied to the wedges.Peel off the covering to secure.Do not reuse old wedges, replace them.

Wedge part number: CE40764-00A

2. Tighten the deflection yoke securing screw.
3. Apply adhesive to secure the 6 magnets as indicated in Fig.1.
4. Secure all the wedges by applying silicon cement.

Silicon cement part number: KE4866</td></tr>
</table>

BM-H1300SU STANDARD CIRCUIT DIAGRAM

■NOTE ON USING CIRCUIT DIAGRAMS

1.SAFETY

The components identified by the ⚠ symbol and shading are critical for safety. For continued safety replace safety critical components only with manufactures recommended parts.

2.SPECIFIED VOLTAGE AND WAVEFORM VALUES

The voltage and waveform values have been measured under the following conditions.

(1)Input signal :NTSC Color bar signal
(2)Setting positions of each knob/button and variable resistor :Original setting position when shipped
(3)Internal resistance of tester :DC 20kΩ/V
(4)Oscilloscope sweeping time :H ⇒20μS/div
:V ⇒5mS/div
:Others ⇒ Sweeping time is specified
(5)Voltage values :All DC voltage values

* Since the voltage values of signal circuit vary to some extent according to adjustments, use them as reference values.

3.INDICATION OF PARTS SYMBOL[EXAMPLE]

•In the PW board :R1209→R209

4.INDICATIONS ON THE CIRCUIT DIAGRAM

(1)Resistors

•Resistance value
No unit :[Ω]
K :[KΩ]
M :[MΩ]

•Rated allowable power
No indication :1/6[W]
Others :As specified

•Type
No indication :Carbon resistor
OMR :Oxide metal film resistor
MFR :Metal film resistor
MPR :Metal plate resistor
UNFR :Uninflammable resistor
FR :Fusible resistor

* Composition resistor 1/2 [W] is specified as 1/2S or Comp.

(2)Capacitors

•Capacitance value
1or higher :[pF]
less than 1 :[μF]

•Withstand voltage
No indication :DC50[V]
Others :DC withstand voltage[V]
AC indicated :AC withstand voltage[V]

* Electrolytic Capacitors
47/50[Example]:Capacitance value[μF]/withstand voltage[V]

•Type
No indication :Ceramic capacitor
MY :Mylar capacitor
MM :Metalized mylar capacitor
PP :Polypropylene capacitor
MPP :Metalized polypropylene capacitor
MF :Metalized film capacitor
TF :Thin film capacitor
BP :Bipolar electrolytic capacitor
TAN :Tantalum capacitor

(3)Coils

No unit :[μH]
Others :As specified

(4)Power Supply

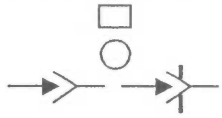

:B1(54V)
:B2(12V)
:5V

* Respective voltage values are indicated.

(5)Test Point


: Test point
: Only test point display

(6)Connecting method


: Connector
: Wrapping or soldering
: Receptacle

(7)Ground symbol

: LIVE side ground
: ISOLATED(NEUTRAL) side ground
: EARTH ground
: DIGITAL ground

5.NOTE FOR REPAIRING SERVICE

This model's power circuit is partly different in the GND. The difference of the GND is shown by the LIVE : (⊥) side GND and the ISOLATED(NEUTRAL) : (⏚) side GND. Therefore, care must be taken for the following points.

(1) Do not touch the LIVE side GND or the LIVE side GND and the ISOLATED(NEUTRAL) side GND simultaneously. If the above caution is not respected, an electric shock may be caused. Therefore, make sure that the power cord is surely removed from the receptacle when, for example, the chassis is pulled out.

(2) Do not short between the LIVE side GND and ISOLATED(NEUTRAL) side GND or never measure with a measuring apparatus (oscilloscope, etc.) the LIVE side GND and ISOLATED(NEUTRAL) side GND at the same time. If the above precaution is not respected, a fuse or any parts will be broken.

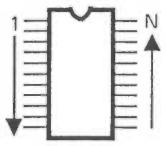
◇ **Since the circuit diagram is a standard one, the circuit and circuit constants may be subject to change for improvement without any notice.**

Jan. 1995 No.50934

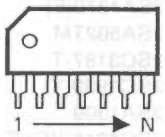
CONTENTS

■ SEMICONDUCTOR SHAPES

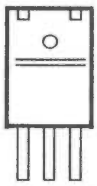
● IC



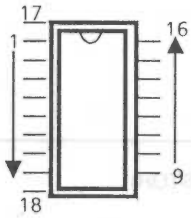
TC4053BP
TC4066BP
HD74LS04P
TC4538BP
HD74LS05P
HD74LS00P
AN5640



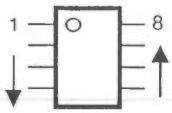
LA7016



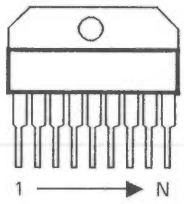
AN7808
AN7812F
TA79012S
AN7805F



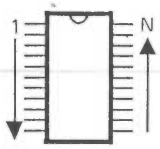
HA11423



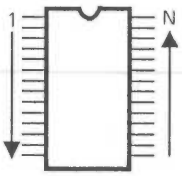
NJM4560D
µPC358
ST24BM-1400



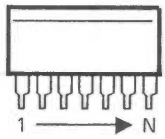
µPC1498H



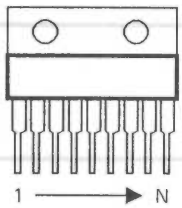
FA5301P



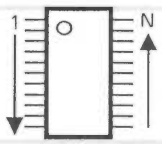
TDA4680
TDA4670
AN5625N



µPC358HA

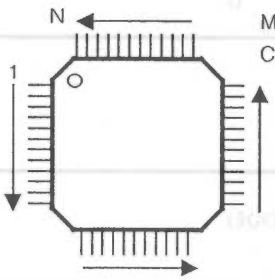


AN5265



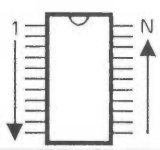
MB90077PF-109

(Flat package IC)



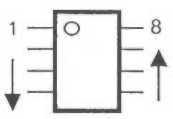
MB89647PF-113
CXD2018Q

(Flat package IC)



HD74HC32FP
HD74HC158FP

(Flat package IC)



µPC4558G-W

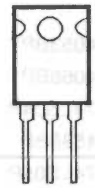
● TRANSISTOR

[Bottom View]

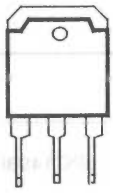
2SC1740S(R)
2SC3311A(Q)-T

[Bottom View]

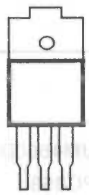
2SC3334
2SA1321
2SC1472K
2SA1370(E)
2SA562TM
2SC3187-T
2SC1959(Y)
2SA1309
2SC1815(YG)-T



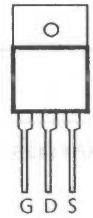
2SC4632



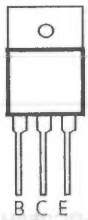
2SC4589-C1



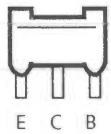
2SD1408
2SD1409



2SK1118

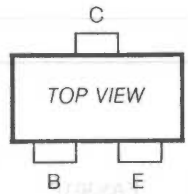


2SC4544



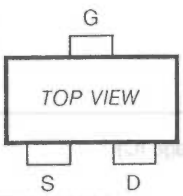
2SC4502

(CHIP TRANSISTOR)



2SC2712(YG)
2SA1162(YG)

(CHIP FET)

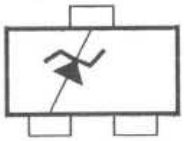


2SK374(Q)

● DIODE

(CHIP DIODE)

TOP VIEW



MA3056(L)-W
MA3150(M)-W
MA151K-W

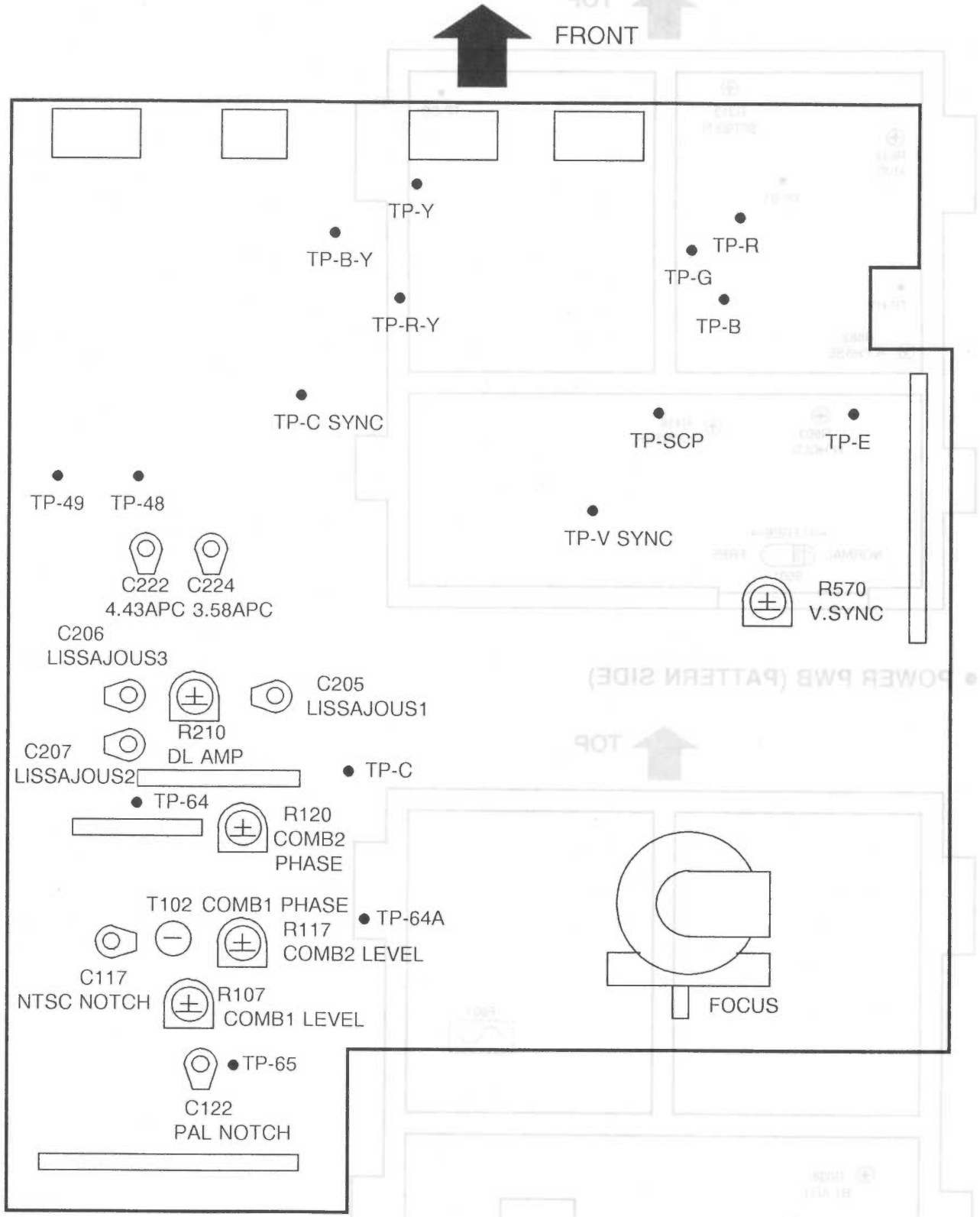
(CHIP DIODE)

TOP VIEW

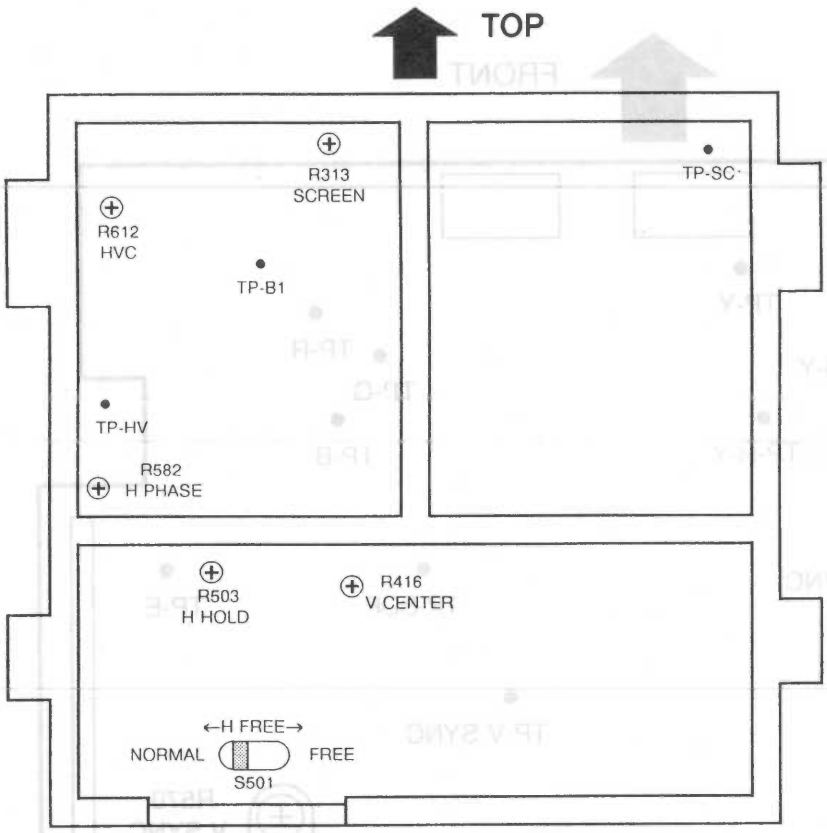
MA8054-W
MA8130-W

■ ALIGNMENT LOCATION

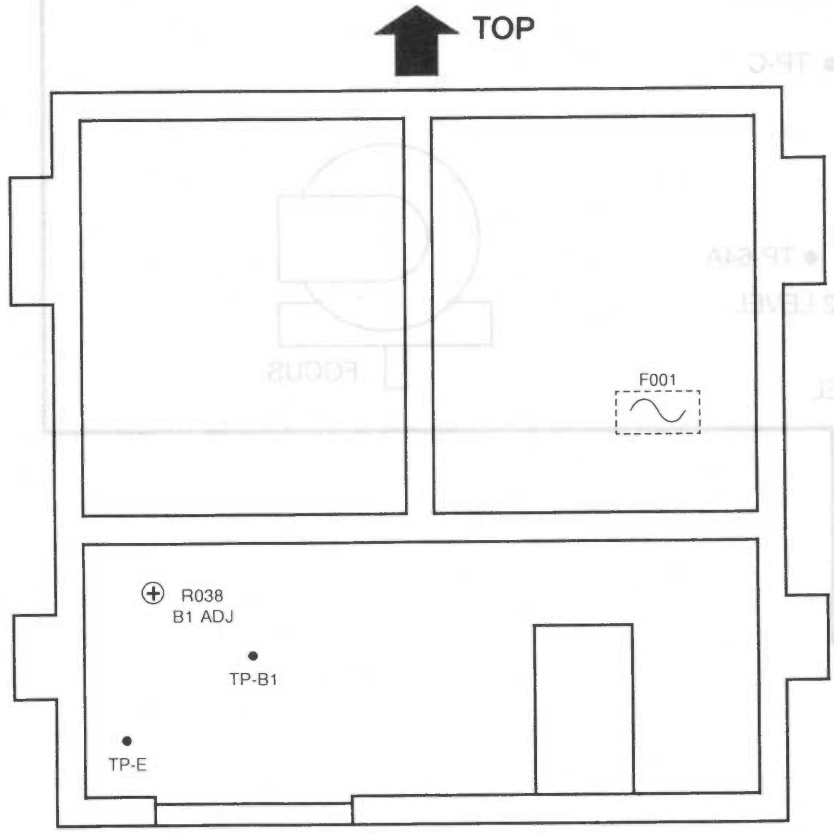
• SIGNAL PWB (PARTS SIDE)



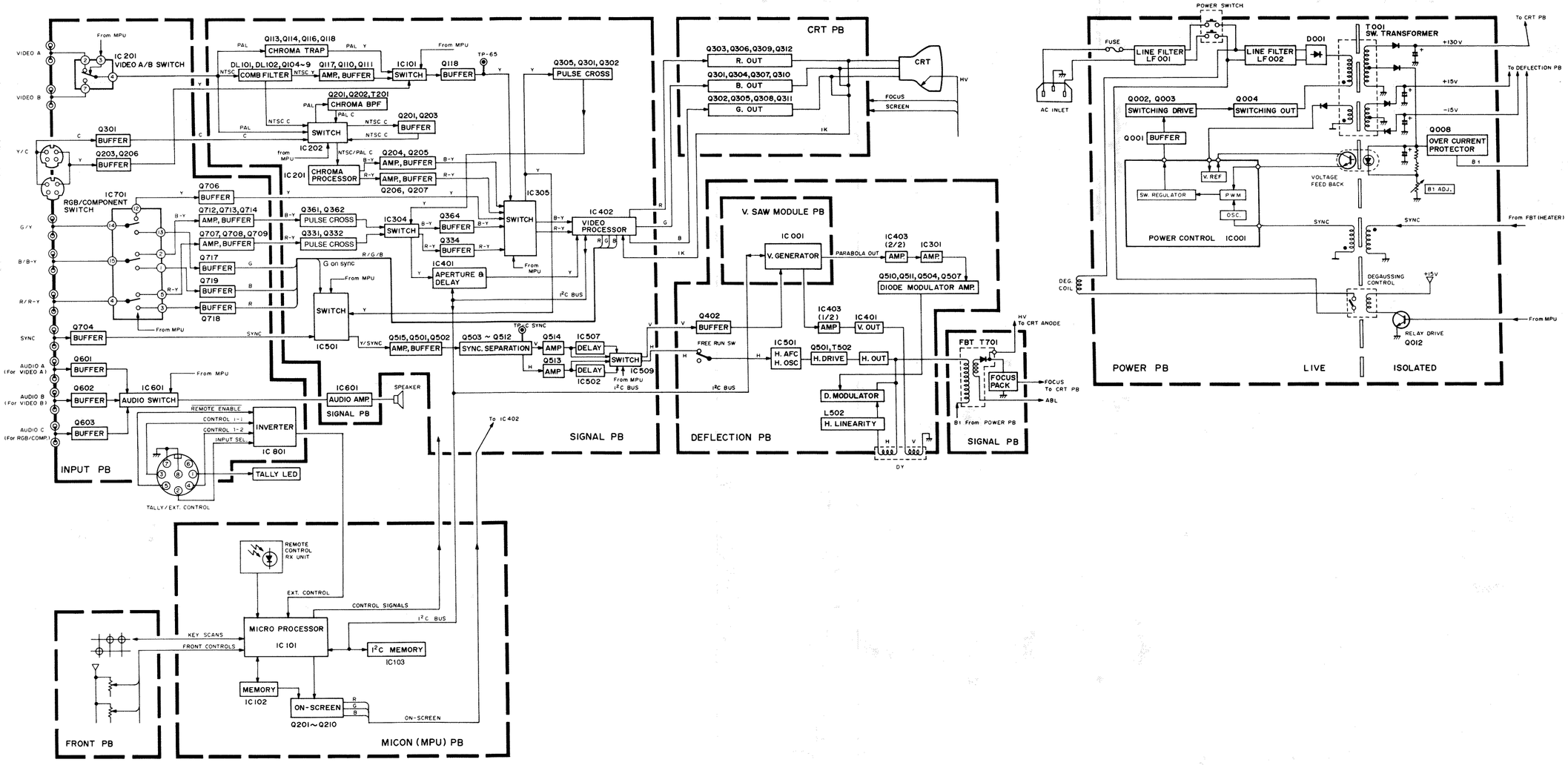
• DEFLECTION PWB (PATTERN SIDE)



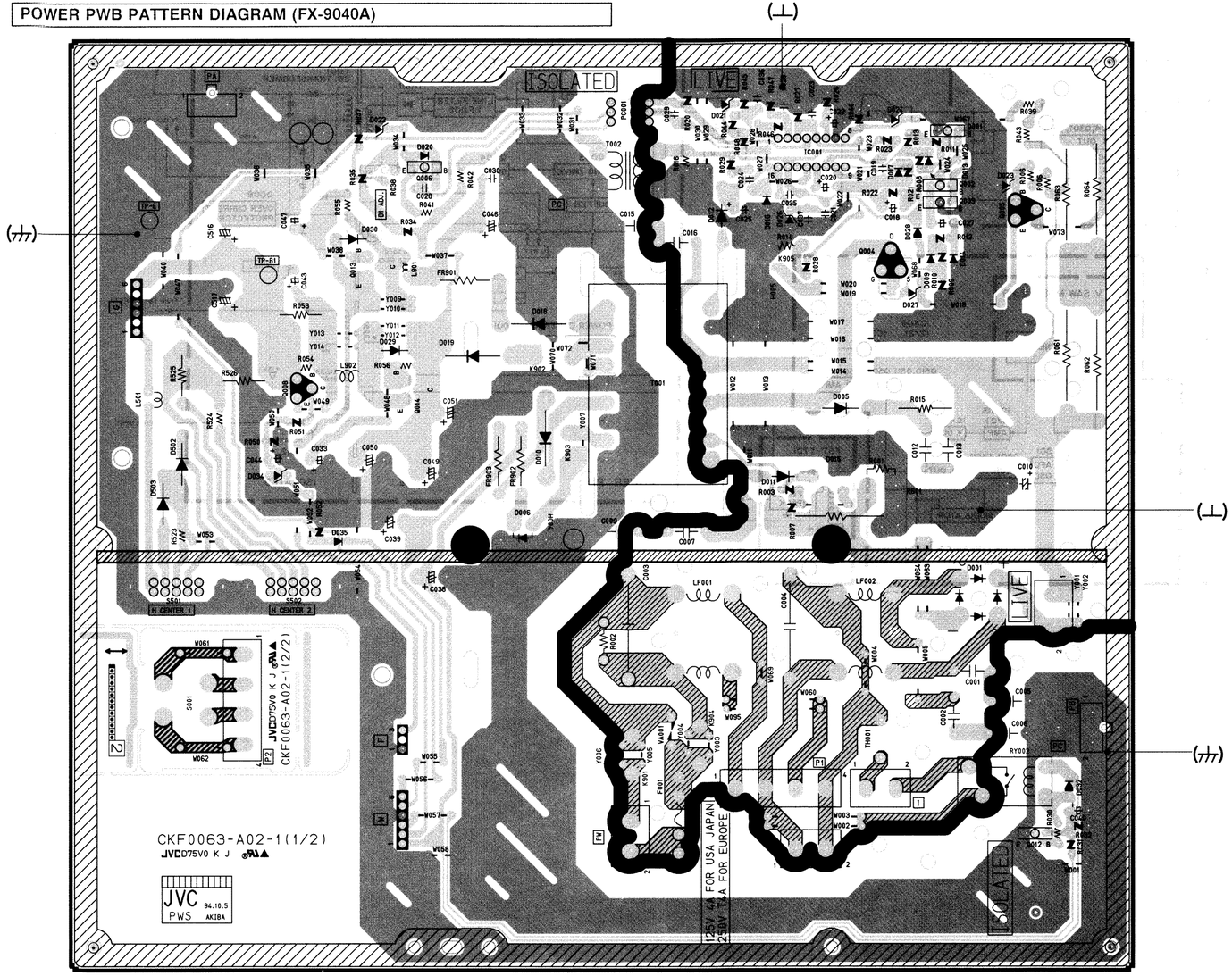
• POWER PWB (PATTERN SIDE)



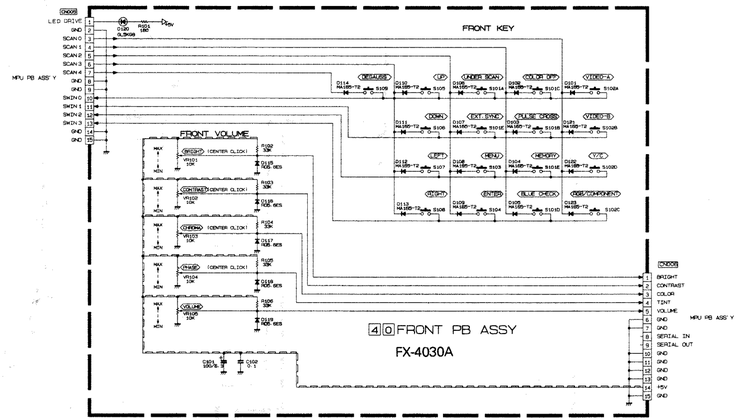
■ BLOCK DIAGRAM

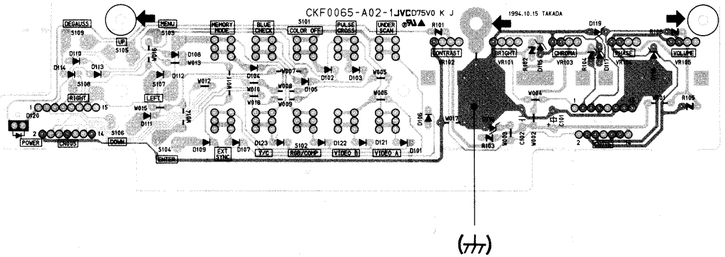


POWER PWB PATTERN DIAGRAM (FX-9040A)

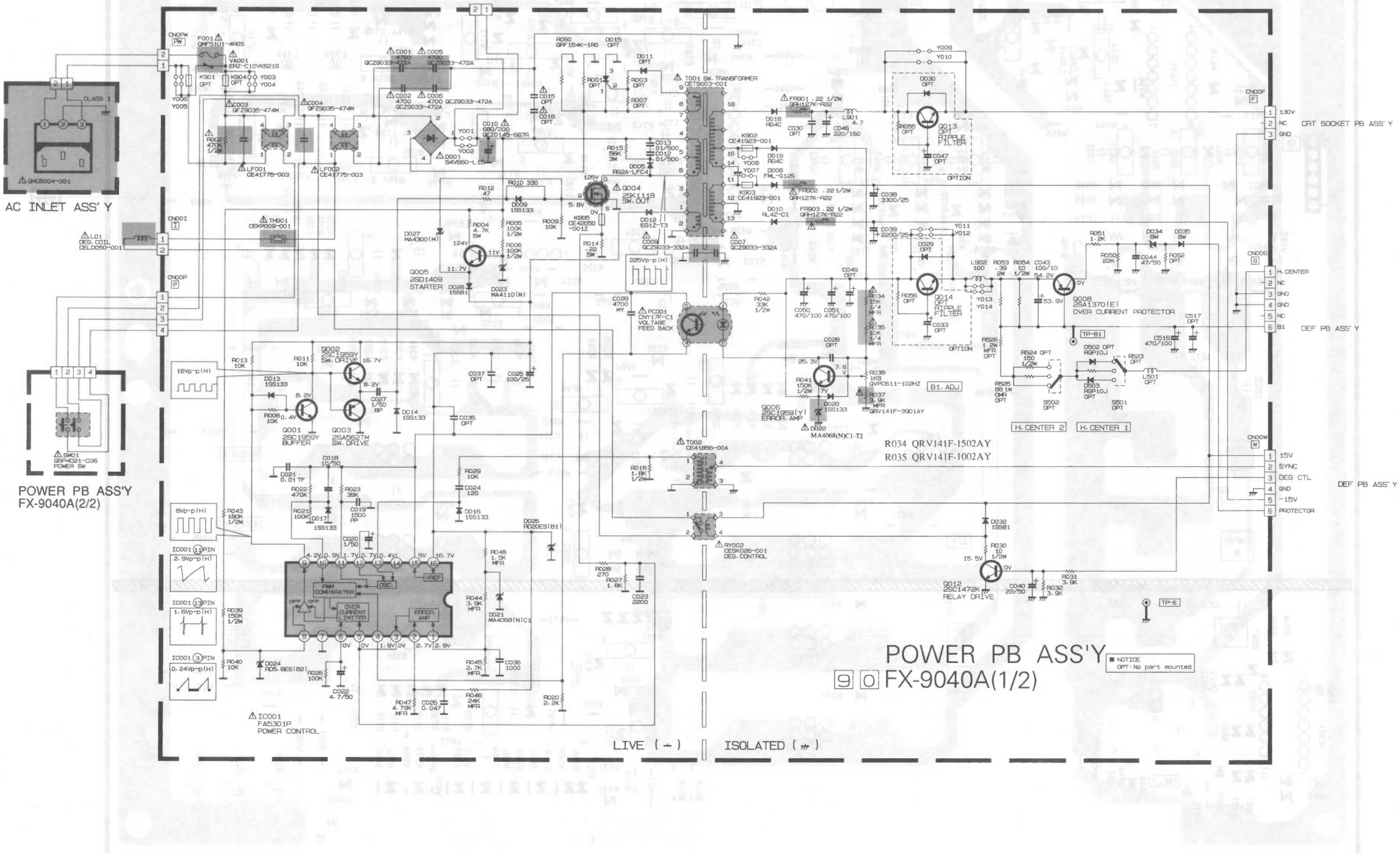


FRONT CONTROL PWB CIRCUIT DIAGRAM / PATTERN DIAGRAM (FX-4030A)

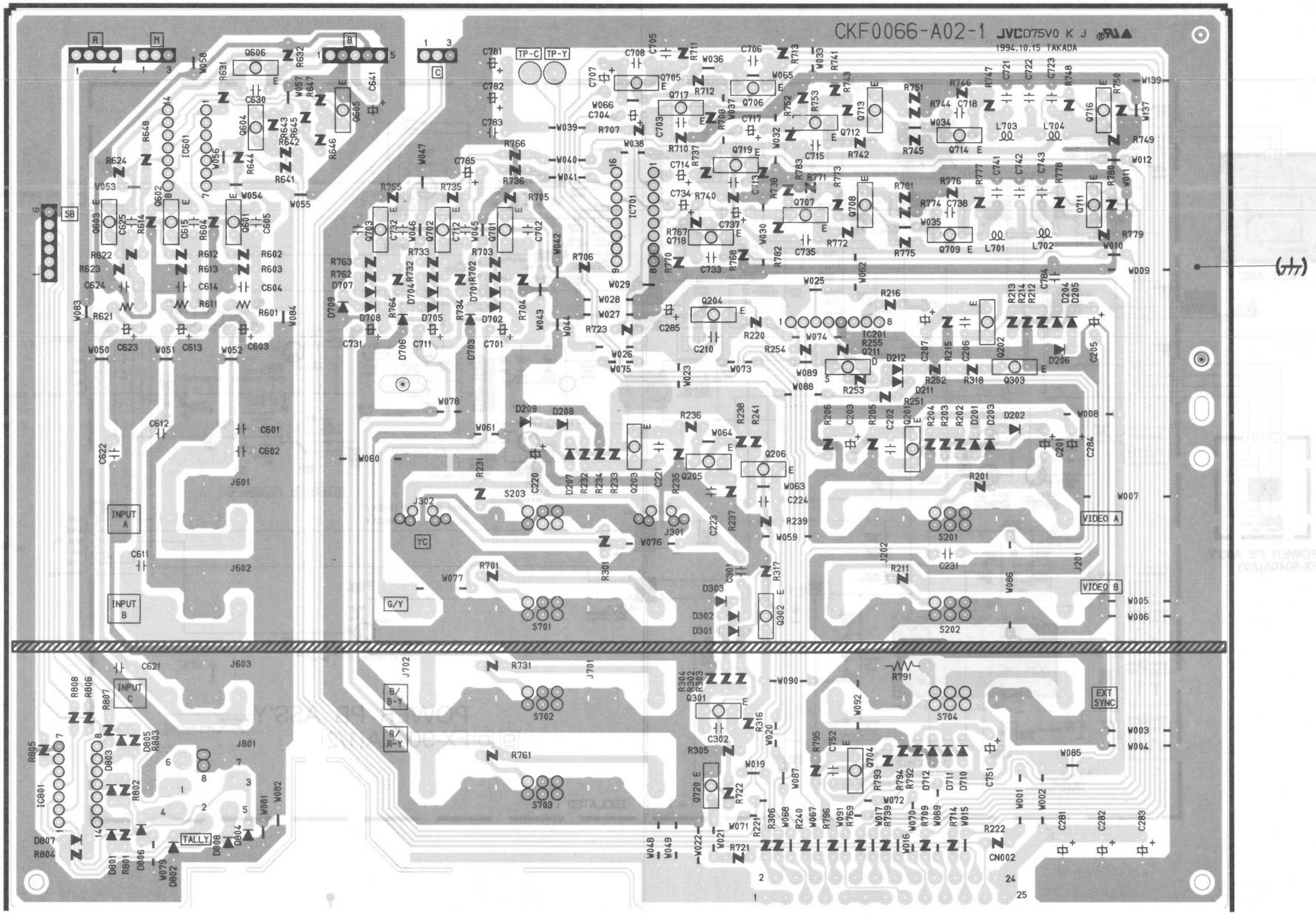




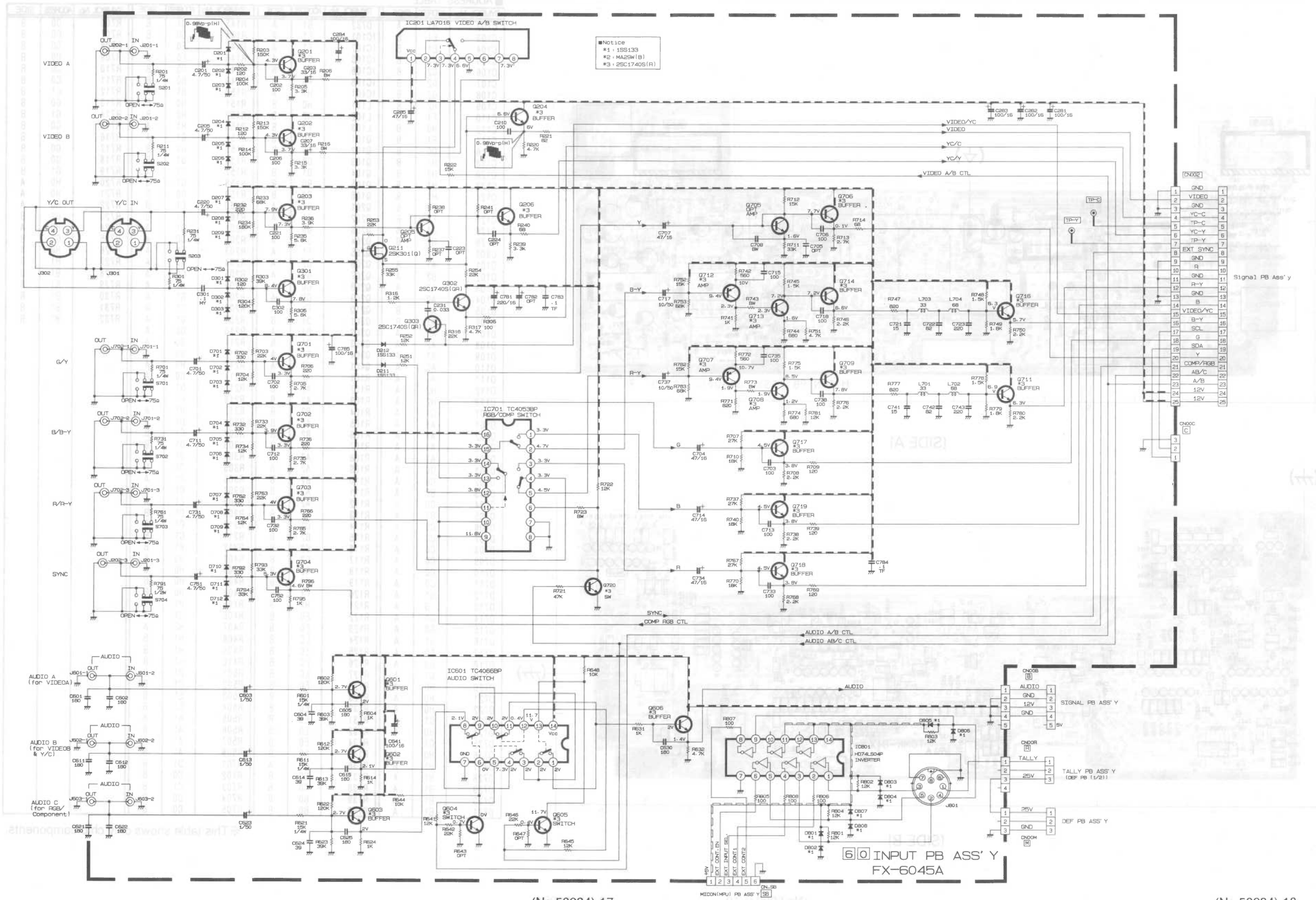
POWER PWB CIRCUIT DIAGRAM



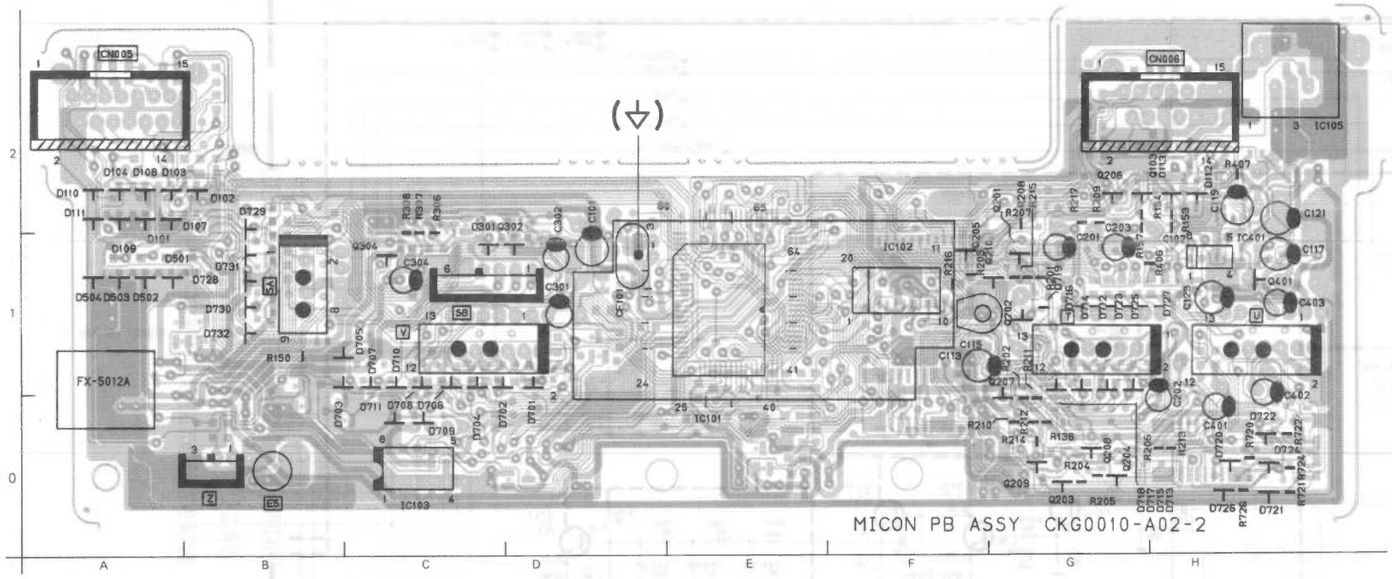
INPUT PWB PATTERN DIAGRAM (FX-6045A)



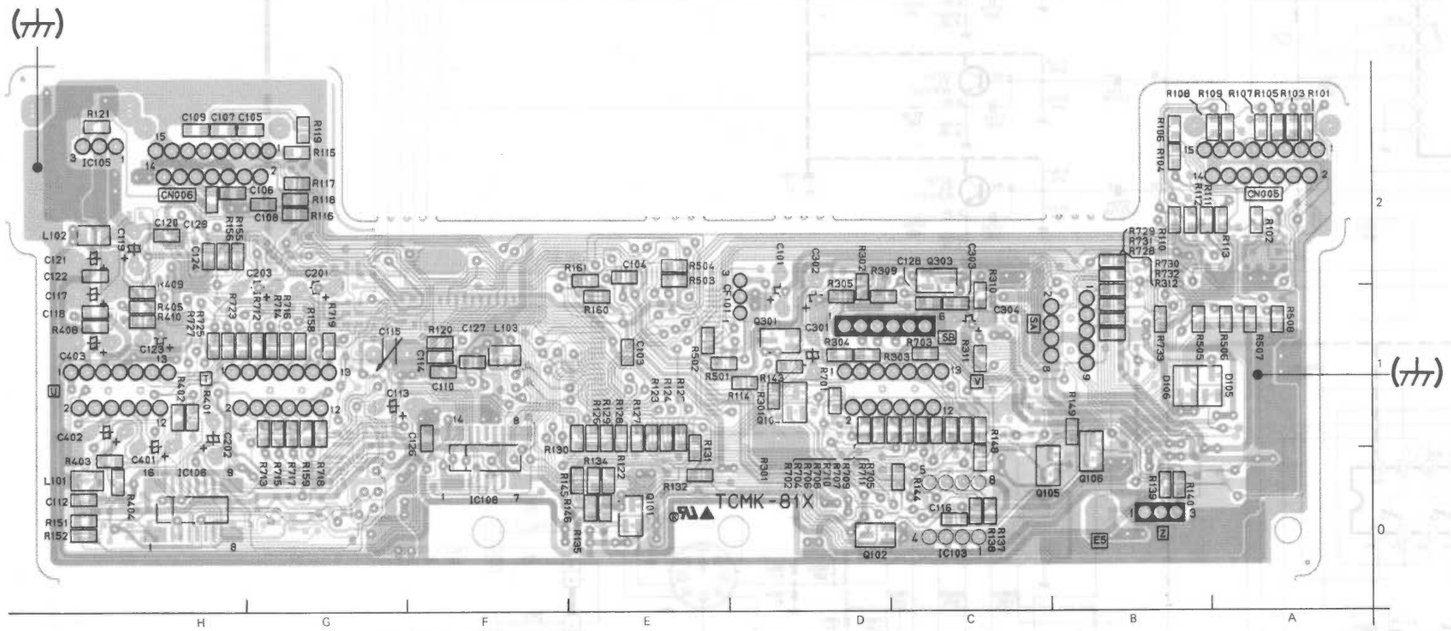
INPUT PWB CIRCUIT DIAGRAM



MICOM (MPU) PWB PATTERN DIAGRAM (FX-5012A)



[SIDE A]



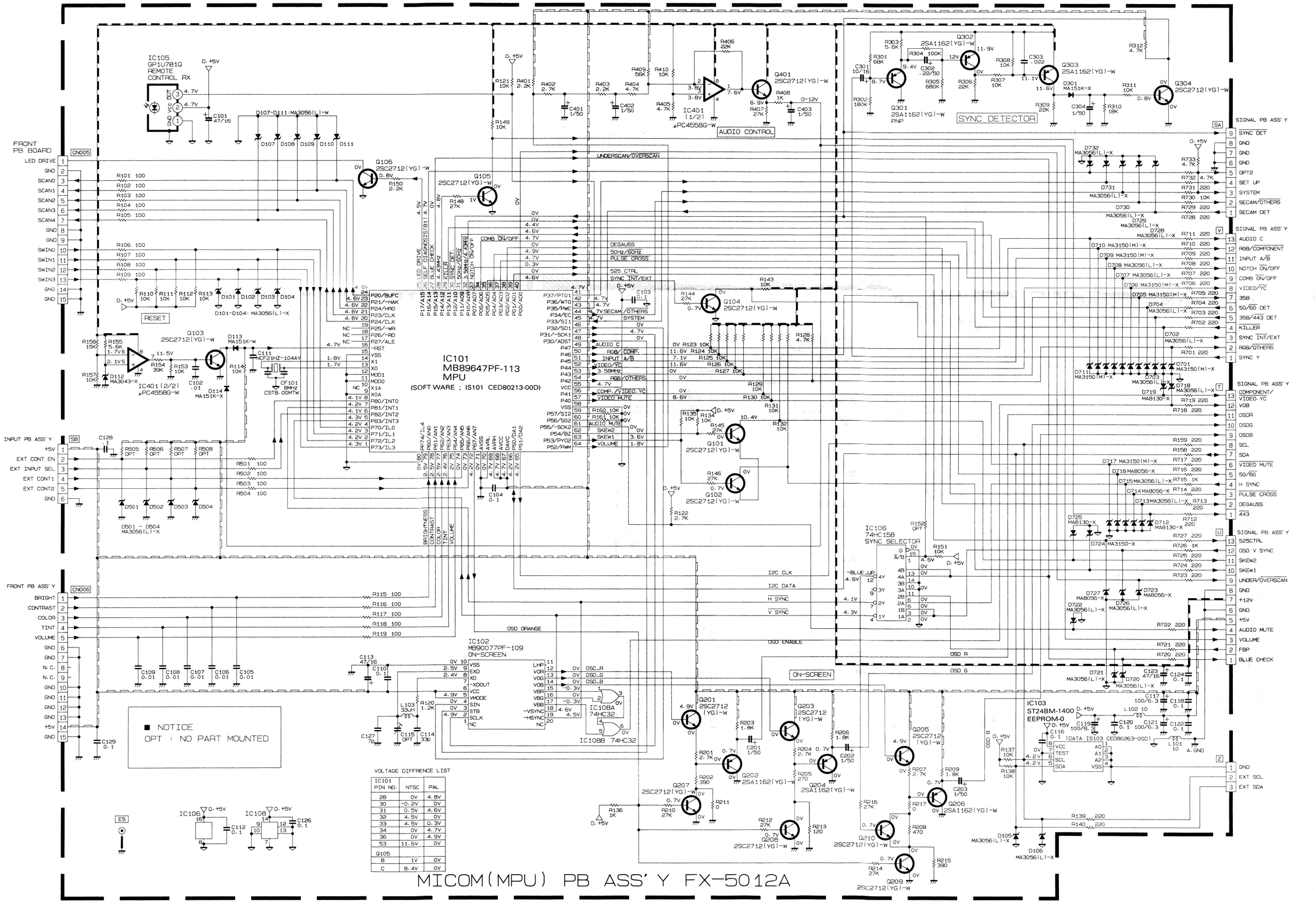
[SIDE B]

■ ADDRESS TABLE

SYMBOL No.	ADDRESS	SIDE	SYMBOL No.	ADDRESS	SIDE	SYMBOL No.	ADDRESS	SIDE	SYMBOL No.	ADDRESS	SIDE
C102	H1	A	D732	B1	A	R143	D1	B	R706	C0	B
C103	E1	B	IC101	E1	A	R144	C0	B	R707	C0	B
C104	E1	B	IC102	F1	A	R145	E0	B	R708	C0	B
C105	G2	B	IC103	C0	A	R146	E0	B	R709	C0	B
C106	G2	B	IC106	H0	B	R148	C0	B	R710	C0	B
C107	G2	B	IC108	F0	B	R149	B0	B	R711	C0	B
C108	G2	B	IC401	H1	A	R150	B1	A	R712	G1	B
C109	H2	B	L101	H0	B	R151	H0	B	R713	G0	B
C110	F1	B	L102	H2	B	R152	H0	B	R714	G1	B
C112	H0	B	L103	F1	B	R153	H1	A	R715	G0	B
C114	F1	B	Q101	E0	B	R154	G1	A	R716	G1	B
C116	C0	B	Q102	C0	B	R155	G1	B	R717	G0	B
C118	H1	B	Q103	G2	A	R156	G1	B	R718	G0	B
C120	H2	B	Q104	D1	B	R157	G1	A	R719	G1	B
C122	H1	B	Q105	B0	B	R158	G1	B	R720	H0	A
C124	H1	B	Q106	B0	B	R159	G0	B	R721	H0	A
C126	F0	B	Q201	G1	A	R160	E1	B	R722	H0	A
C127	F1	B	Q202	G1	A	R161	E1	B	R723	G1	B
C128	C1	B	Q203	G0	A	R201	G1	A	R724	H0	A
C129	H2	B	Q204	G0	A	R202	G0	A	R725	G1	B
C303	C1	B	Q205	F1	A	R203	F1	A	R726	H0	A
D101	A1	A	Q206	G2	A	R204	G0	A	R727	H1	B
D102	B2	A	Q207	G0	A	R205	G0	A	R728	B1	B
D103	A2	A	Q208	G0	A	R206	H0	A	R729	B1	B
D104	A2	A	Q209	G0	A	R207	G1	A	R730	B1	B
D105	A1	B	Q210	F1	A	R208	G1	A	R731	B1	B
D106	A1	B	Q301	D1	B	R209	G1	A	R732	B1	B
D107	A1	A	Q302	D1	A	R210	G0	A			
D108	A2	A	Q303	C1	B	R211	G0	A			
D109	A1	A	Q304	C1	A	R212	G0	A			
D110	A2	A	Q401	H1	A	R213	H0	A			
D111	A1	A	R101	A2	B	R214	G0	A			
D112	H2	A	R102	A2	B	R215	G1	A			
D113	H2	A	R103	A2	B	R216	F1	A			
D301	C1	A	R104	B2	B	R217	G1	A			
D501	A1	A	R105	A2	B	R301	D1	B			
D502	A1	A	R106	B2	B	R302	C1	B			
D503	A1	A	R107	A2	B	R303	C1	B			
D504	A1	A	R108	A2	B	R304	D1	B			
D701	D0	A	R109	A2	B	R305	D1	B			
D702	C0	A	R110	B2	B	R306	C1	A			
D703	B0	A	R111	A2	B	R307	C1	A			
D704	C0	A	R112	A2	B	R308	C1	A			
D705	B1	A	R113	A2	B	R309	C1	B			
D706	C0	A	R114	D1	B	R310	C1	B			
D707	C0	A	R115	G2	B	R311	C1	B			
D708	C0	A	R116	G2	B	R312	B1	B			
D709	C0	A	R117	G2	B	R401	H0	B			
D710	C0	A	R118	G2	B	R402	H0	B			
D711	C0	A	R119	G2	B	R403	H0	B			
D712	G1	A	R120	F1	B	R404	H0	B			
D713	G0	A	R121	H2	B	R405	H1	B			
D714	G1	A	R122	E0	B	R406	G1	A			
D715	G0	A	R123	E0	B	R407	H2	A			
D716	G1	A	R124	E0	B	R408	H1	B			
D717	G0	A	R125	E0	B	R409	H1	B			
D718	G0	A	R126	E0	B	R410	H1	B			
D719	G1	A	R127	E0	B	R501	D1	B			
D720	H0	A	R128	E0	B	R502	D1	B			
D721	H0	A	R129	E0	B	R503	E1	B			
D722	H0	A	R130	E0	B	R504	E1	B			
D723	G1	A	R131	E0	B	R505	A1	B			
D724	H0	A	R132	E0	B	R506	A1	B			
D725	G1	A	R134	E0	B	R507	A1	B			
D726	H0	A	R135	E0	B	R508	A1	B			
D727	H1	A	R136	G0	A	R701	D1	B			
D728	B1	A	R137	C0	B	R702	C0	B			
D729	B1	A	R138	C0	B	R703	C1	B			
D730	B1	A	R139	B0	B	R704	C0	B			
D731	B1	A	R140	B0	B	R705	C0	B			

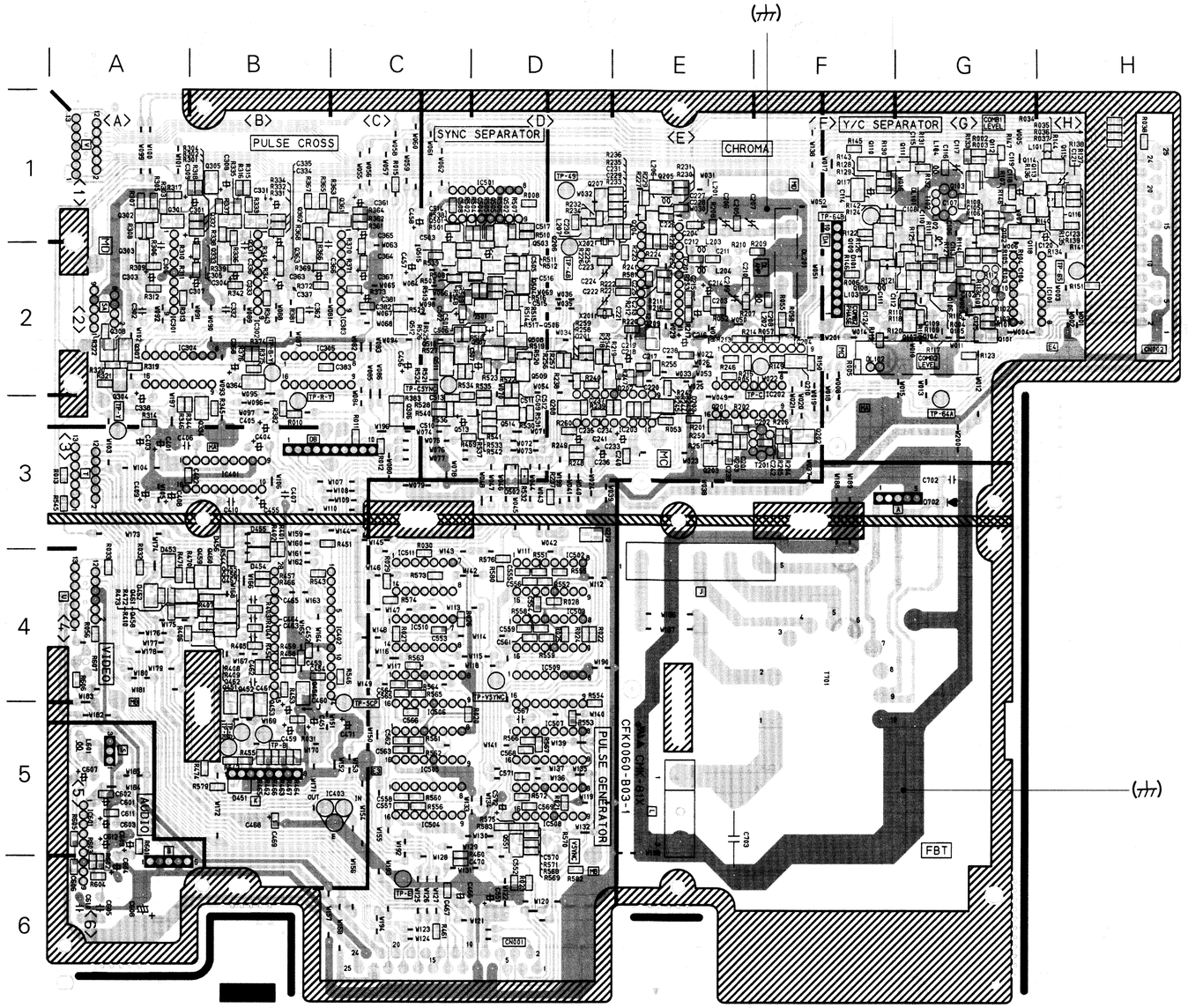
※This table shows only chip components.

MICOM (MPU) PWB CIRCUIT DIAGRAM



BM-H1300SU BM-H1300SU

SIGNAL PWB PATTERN DIAGRAM (FX-1054A)

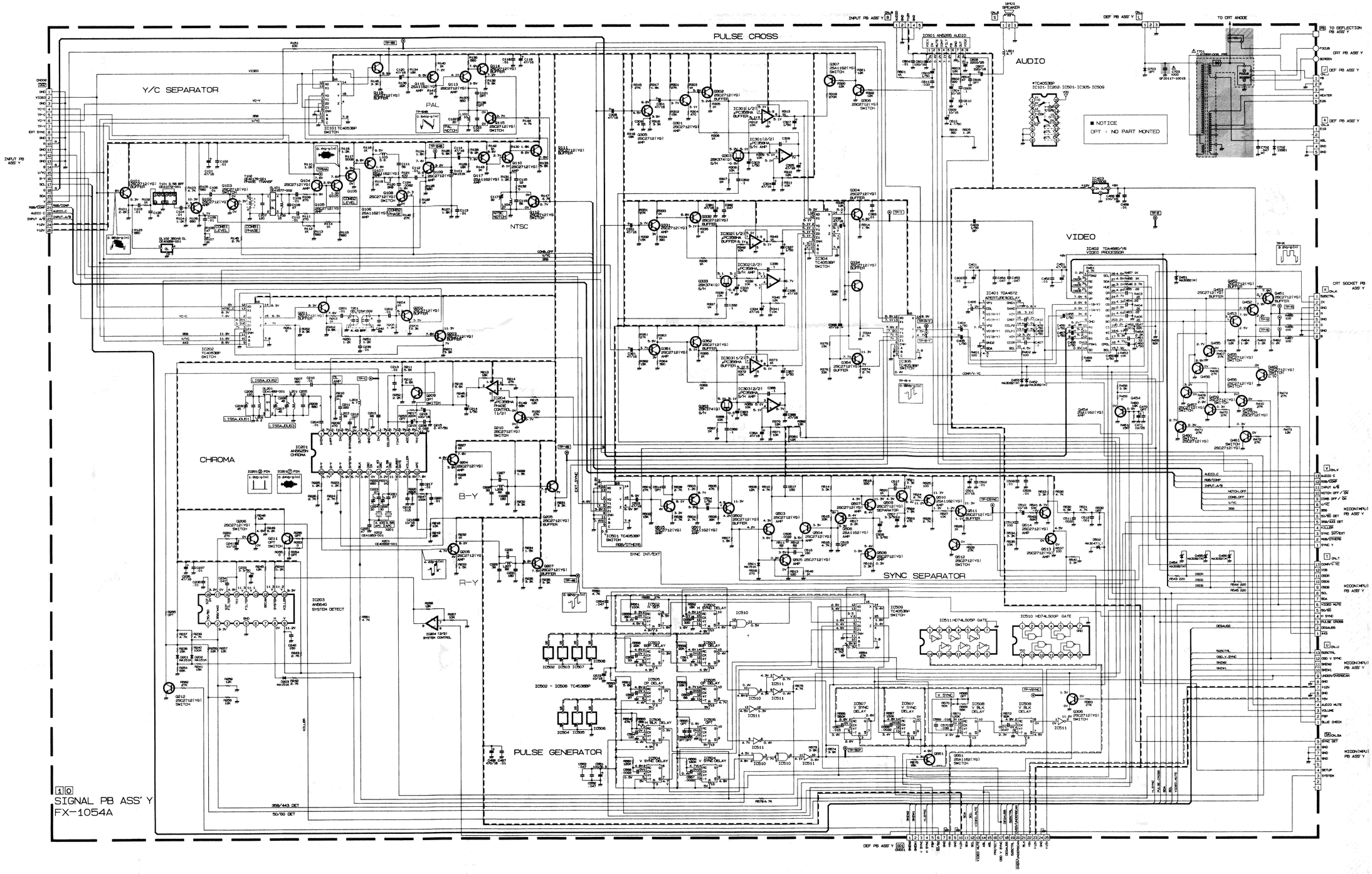


■ ADDRESS TABLE

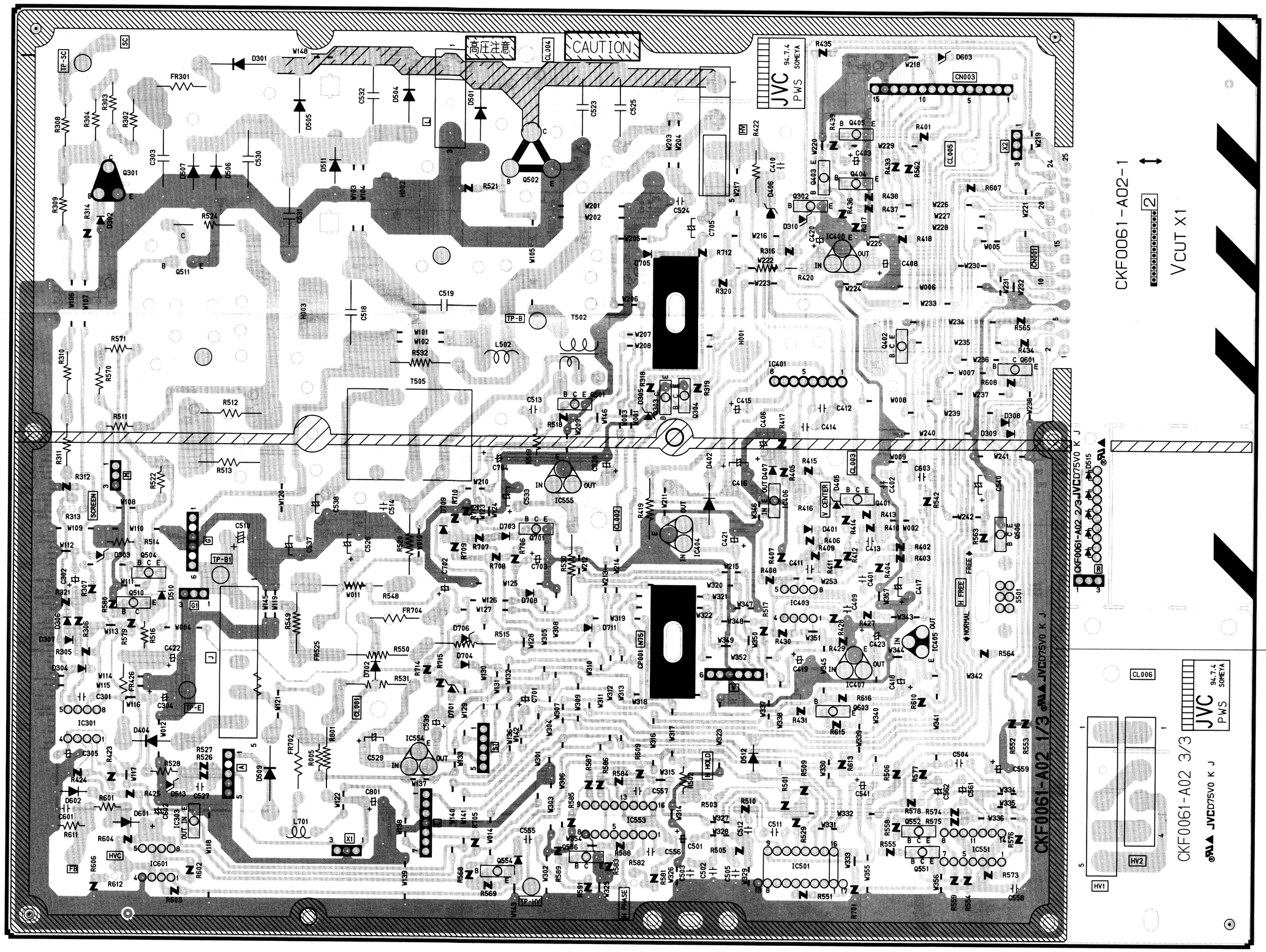
※ SIDE : A=PARTS SIDE, B=PATTERN SIDE

SYMBOL No.	ADDRESS	SIDE
C101	G2	A
C102	G2	B
C103	G2	B
C104	G2	B
C105	G1	B
C106	G1	B
C107	G1	B
C108	G1	B
C109	G2	B
C110	G1	B
C111	F2	B
C112	G2	B
C113	G2	B
C114	F1	A
C115	G1	B
C116	G1	B
C117	G1	A
C118	G1	B
C119	G1	A
C120	H1	A
C121	H1	B
C122	H1	A
C123	H1	B
C124	F2	B
C125	G2	B
C201	E3	B
C202	E3	B
C203	E2	B
C204	E1	B
C205	E1	B
C206	F1	A
C207	F1	A
C208	F2	B
C209	E2	A
C210	E2	B
C211	E2	B
C212	E2	B
C213	E2	B
C214	E2	A
C215	E2	A
C216	E2	A
C217	E2	B
C218	E2	A
C219	E2	A
C220	E2	B
C221	D2	A
C222	D2	A
C223	D2	B
C224	D2	A
C225	E2	B
C226	E1	B
C227	E1	B
C228	E1	B
C229	E1	B
C230	D1	B
C231	E1	B
C233	E3	A
C234	D3	B
C235	D3	B
C236	D3	A
C237	E3	B
C238	E2	B
C239	E3	B
C240	E3	B
C241	D3	A
C242	F3	B
C301	B1	A
C302	A2	A
C303	A2	A
C304	B2	A
C305	B2	A
C306	A2	A
C307	B2	A
C308	B1	A
C309	B1	B
C331	B1	A
C332	B2	A
C333	B2	A
C334	B2	A
C335	B2	A
C336	B1	A
C337	B2	A
C338	A3	A
C361	C1	A
C362	B2	A
C363	B2	A
C364	C2	A
C365	C1	A
C366	C2	A
C367	C2	A
C368	B2	A
C381	C2	A
C382	C2	B
C383	C2	B
C401	A3	A
C402	B3	B
C403	A3	A
C404	B3	A
C405	B3	A
C406	A3	A
C407	B3	A
C408	A3	A
C409	A3	A
C410	B3	A
C451	B5	A
C452	B4	B
C453	B4	B
C454	B4	B
C455	B3	A
C456	C2	A
C457	C2	A
C458	C1	A
C459	B5	A
C460	B5	A
C461	B4	A
C462	B4	B
C463	B4	A
C464	B4	A
C465	B4	A
C466	C6	A
C467	C6	B
C468	B5	B
C469	B5	B
C470	C6	B
C471	C5	A
C501	C2	A
C502	C2	B
C503	C1	A
C504	D2	A
C505	D2	B
C506	D2	A
C507	D2	A
C508	C1	B
C509	D2	A
C510	C3	A
C511	D3	B
C512	D2	B
C513	C3	B
C514	C2	B
C516	D2	B
C517	D1	B
C551	D6	A
C552	D6	B
C553	C4	B
C554	D4	B
C555	D4	B
C556	D4	B
C557	C5	B
C558	C5	B
C559	D4	B
C561	D4	B
C562	C5	B
C563	C5	B
C564	C4	B
C565	C4	B
C566	C5	B
C567	D5	A
C568	D5	B
C569	D5	B
C570	D5	B
C571	D5	B
C572	D5	A
C575	D2	B
C601	A5	B
C602	A5	B
C603	A5	A
C604	A6	A
C605	A6	A
C606	A6	B
C607	A5	A
C608	A6	A
C609	A6	A
C610	A6	A
C611	A5	B
C612	A5	A
C702	G3	A
C703	E5	A
D101	F2	B
D201	D2	B
D202	E2	B
D203	E3	B
D451	B5	B
D452	A4	B
D453	A4	B
D454	B4	B
D455	B3	B
D456	B3	B
D502	D3	B
D511	D2	B
D703	E5	A
L101	H1	A
L102	G2	A
L103	F2	A
L104	G1	A
L201	E1	A
L202	F2	A
L203	E2	A
L204	E2	A
L206	E1	A
L207	D1	A
L601	A5	A
Q101	G2	B
Q102	G2	B
Q103	G1	B
Q104	G2	B
Q105	G2	B
Q106	G2	B
Q107	G2	B
Q108	F2	B
Q109	F1	B
Q110	F1	B
Q111	G1	B
Q112	G1	B
Q113	H1	B
Q114	H1	B
Q115	H1	B
Q116	H1	B
Q117	F1	B
Q118	G1	B
Q201	E3	B
Q202	F3	B
Q203	E3	B
Q204	E1	B
Q205	E1	B
Q206	D1	B
Q207	D1	B
Q208	D3	B
Q209	E2	B
Q210	F2	B
Q211	E3	B
Q212	D3	B
Q301	A1	B
Q302	A1	B
Q303	A2	B
Q304	A2	B
Q305	B1	B
Q306	C3	B
Q307	A2	B
Q308	A2	B
Q331	B1	B
Q332	B1	B
Q333	B2	B
Q334	B3	B
Q361	C1	B
Q362	B1	B
Q363	B2	B
Q364	B2	B
Q451	B5	B
Q452	B5	B
Q453	B5	B
Q454	B4	B
Q455	B4	B
Q456	B4	B
Q457	B4	B
Q458	B4	B
Q459	B4	B
Q460	B4	B
Q501	D2	B
Q502	D1	B
Q503	D2	B
Q504	D2	B
Q505	D2	B
Q506	D2	B
Q507	D2	B
Q508	D2	B
Q509	D2	B
Q510	C2	B
Q511	C2	B
Q512	C2	B
Q513	C3	B
Q514	D3	B
Q515	C2	B
Q551	D5	B
R002	G1	B
R003	G1	B
R004	G2	B
R005	F2	B
R006	F2	B
R008	D1	B
R010	B3	B
R011	C3	B
R012	C3	B
R013	A3	B
R015	C1	B
R020	D5	B
R021	D5	B
R022	D4	B
R023	D6	B
R024	D4	B
R025	D4	B
R026	C4	B
R027	C4	B
R028	D4	B
R029	C4	B
R030	C4	B
R031	B5	B
R032	A4	B
R033	A4	B
R034	H1	B
R035	H1	B
R036	H1	B
R037	H1	B
R038	H1	B
R051	E2	B
R052	E2	B
R053	E3	B
R055	F2	B
R056	E3	B
R057	F2	B
R058	F2	B
R101	G2	B
R102	G2	B
R103	G2	B
R104	F1	B
R105	G2	B
R106	G1	B
R107	G1	A
R108	G1	B
R109	G2	B
R110	G2	B
R111	G2	B
R112	G2	B
R113	G2	B
R114	G2	B
R115	G2	B
R116	G2	B
R117	G2	A
R118	G2	B
R119	F2	B
R120	F2	A
R121	F2	B
R122	F1	B
R123	G2	B
R124	F1	B
R125	G2	B
R126	F2	B
R127	G2	B
R128	F1	B
R129	F1	B
R130	F1	B
R131	G1	B
R132	G1	B
R133	G1	B
R134	H1	B
R135	H1	B
R136	G1	B
R137	H1	B
R138	H1	B
R139	H1	B
R140	G1	B
R141	H1	B
R142	F1	B
R143	F1	B
R144	H1	B
R145	F1	B
R146	F2	B
R147	G1	B
R148	G1	B
R149	F2	B
R150	F2	B
R151	H2	B
R201	E3	B
R202	E3	B
R203	E3	B
R204	F3	B
R205	F3	B
R206	F3	B
R207	E2	B
R208	E1	B
R209	F2	B
R210	E2	A
R211	E2	B
R212	E2	B
R213	E2	B
R214	F2	B
R215	E2	B
R216	E2	B
R217	E2	B
R218	D2	B
R219	E2	B
R220	E2	B
R221	E2	B
R222	E2	B
R223	E2	B
R224	E2	B
R225	E1	B
R226	E1	B
R227	E1	B
R228	E2	B
R229	E1	B
R230	E1	B
R231	E1	B
R232	D1	B
R233	E1	B
R234	D1	B
R235	E1	B
R236	E1	B
R237	D3	B
R238	D2	B
R239	E3	B
R240	D2	B
R241	E2	B
R242	E2	B
R243	E3	B
R244	E3	B
R245	E3	B
R246	E2	B
R247	E2	B
R248	D3	B
R249	D3	B
R250	E3	B
R251	E3	B
R252	E2	B
R253	E2	B
R254	D2	B
R255	E2	B
R256	D2	B
R257	D2	B
R258	D2	B
R259	D2	B
R260	D3	B
R301	B1	B
R302	B1	B
R303	A1	B
R304	B1	B
R305	A1	B
R306	A1	B
R307	A1	B
R308	A1	B
R309	A2	B
R310	B2	B
R311	B2	B
R312	A2	B
R313	A2	B
R314	A3	B
R315	B1	B
R316	B1	B
R317	A1	B
R318	B1	B
R319	A2	B
R320	A2	B
R321	A2	B
R322	A2	B
R331	B1	B
R332	B1	B
R333	B1	B
R334	B1	B
R335	B1	B
R336	B2	B
R337	B1	B
R338	B1	B
R339	B2	B
R340	B2	B
R341	B2	B
R342	B2	B
R343	B2	B
R344	B3	B
R345	B3	B
R346	A3	B
R361	C1	B
R362	C1	B
R363	C1	B
R364	C1	B
R365	B1	B
R366	B1	B
R367	B1	B
R368	B1	B
R369	B2	B
R371	C2	B
R372	B2	B
R373	C2	B
R374	B2	B
R375	B2	B
R376	B2	B
R381	B2	B
R382	B3	B
R383	C3	B
R401	B4	B
R402	B4	B
R403	B4	B
R404	B4	B
R405	B4	B
R406	B4	B
R407	B4	B
R408	B4	B
R409	B4	B
R410	A4	B
R451	C3	B
R453	B4	B
R454	B4	B
R455	B5	B
R456	B4	B
R457	B4	B
R458	B4	B
R459	B4	B
R460	C6	B
R461	C6	B
R462	B5	B
R463	B5	B
R464	B5	B
R465	B5	B
R466	B5	B
R467	B5	B
R469	D3	B
R470	B4	B
R471	A4	B
R472	A4	B
R473	A4	B
R474	B5	B
R501	C1	B
R502	D1	B
R503	C2	B
R504	D1	B
R505	D2	B
R506	D1	B
R507	D1	B
R508	D2	B
R509	D2	B
R510	D1	B
R511	D2	B
R512	D2	B
R513	D2	B
R514	D2	B
R515	D2	B
R516	D2	B
R517	D2	B
R518	D2	B
R519	D2	B
R520	D2	B
R521	D2	B
R522	D2	B
R523	D2	B
R524	C2	B
R525	C2	B
R526	C2	B
R527	C2	B
R528	C3	B
R529	C2	B
R530	D3	B
R531	D3	B
R532	D3	B
R533	D3	B
R534	D3	B
R535	D3	B
R536	C3	B
R537	D3	B
R538	C2	B
R539	C2	B
R540	C3	B
R541	D3	B
R542	D3	B
R543	B4	B
R544	B4	B
R545	A3	B
R546	C4	B
R547	B5	B
R548	D2	B
R551	D4	B
R552	D4	B
R553	D5	B
R554	D5	B
R555	D4	B
R556	C5	B
R557	C4	B
R558	C4	B
R559	D4	B
R560	C5	B
R561	C5	B
R562	C5	B
R563	C4	B
R564	C4	B
R565	C4	B
R566	D5	B
R567	D5	B
R568	D5	B
R569	D5	B
R570	D5	A
R571	D5	B
R572	D5	B
R573	C4	B
R574	C4	B
R575	D5	B
R576	D4	B
R579	B5	B
R580	D4	B
R581	E2	B
R582	D6	B
R583	D5	B
R601	A5	B
R602	A6	B
R603	A6	B
R604	A6	B
R605	A5	B
R606	A4	B
T101	G2	A
T102	G1	A
T201	F3	A
T701	F4	A
X201	D2	A
X202	D2	A
DL101	G1	A
DL102	G2	A
DL201	F1	A
IC201	E1	A
IC202	E2	A
IC203	D3	A
IC204	E2	A
IC301	A1	A
IC302	B1	A
IC303	C1	A
IC304	A2	A
IC305	B2	A
IC401	B3	A
IC402	C4	A
IC403	C5	A
IC501	C1	A
IC502	D4	A
IC503	D4	A
IC504	C5	A
IC505	C5	A
IC506	C4	A
IC507	D5	A
IC508	D5	A
IC509	D4	A

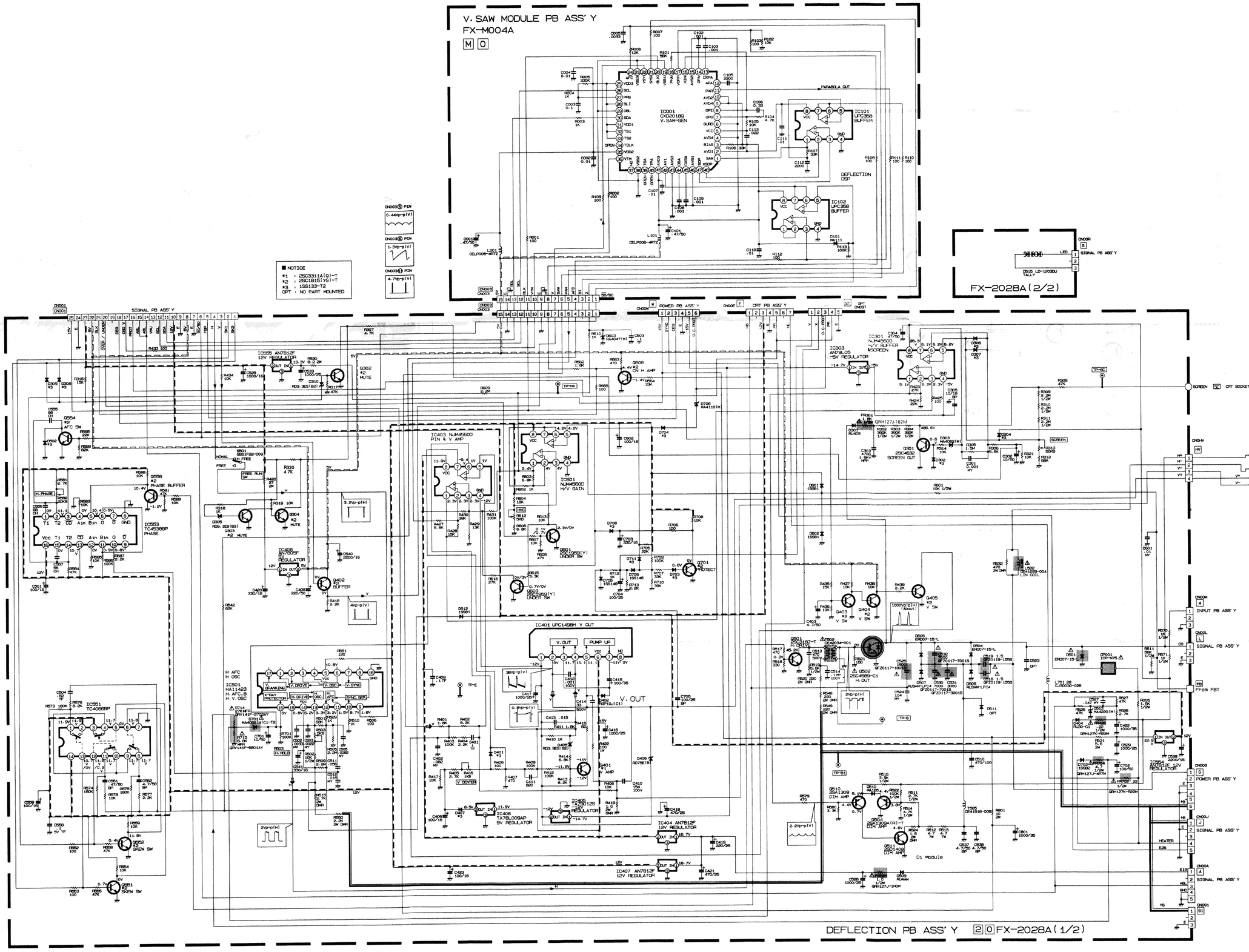
SIGNAL PWB CIRCUIT DIAGRAM



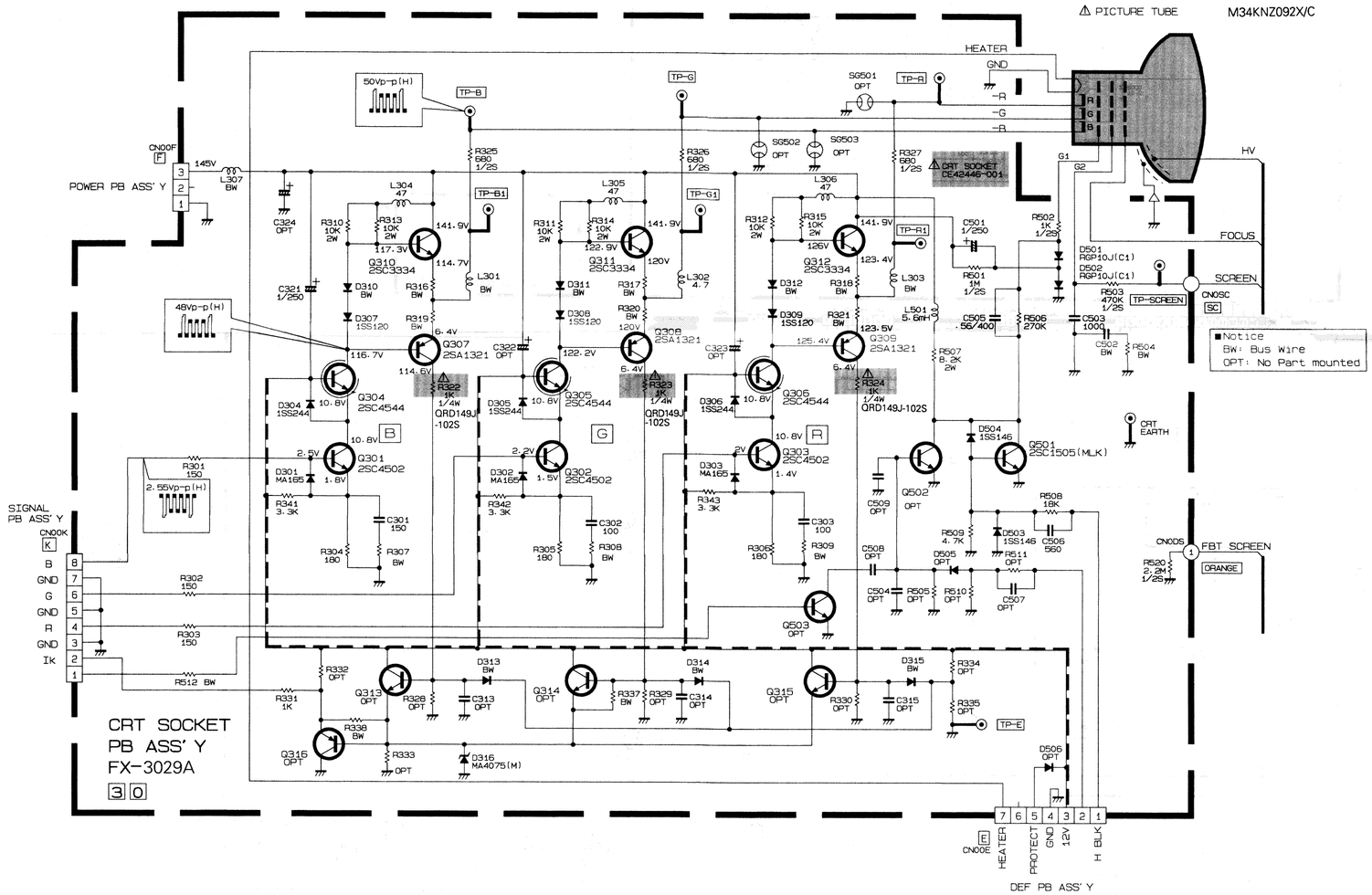
DEFLECTION PWB PATTERN DIAGRAM (FX-2028A)

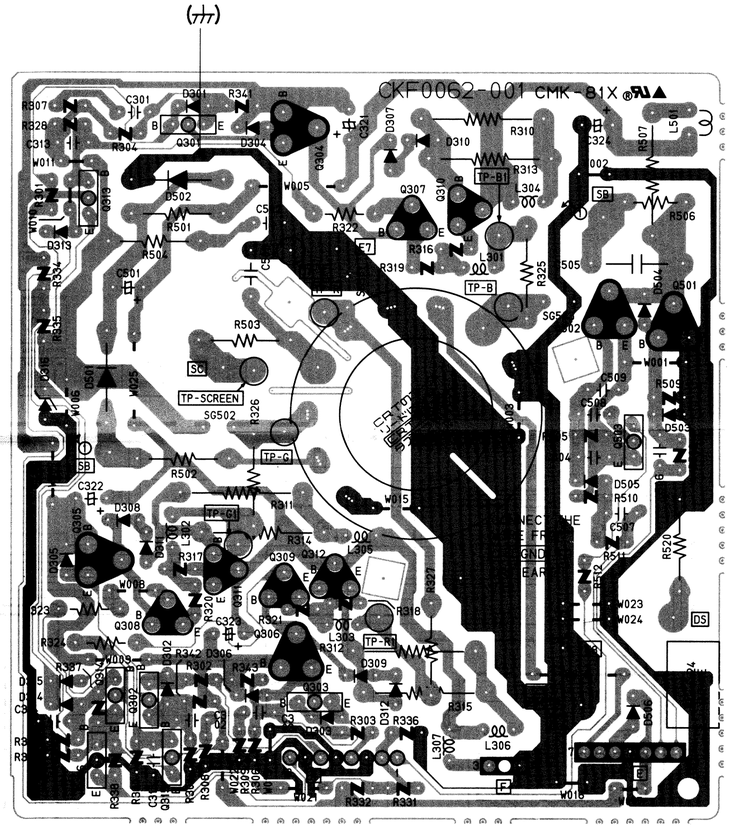


DEFLECTION PWB CIRCUIT DIAGRAM



CRT SOCKET CIRCUIT DIAGRAM / PATTERN DIAGRAM (FX-3029A)





PARTS LIST

CAUTION

- The parts identified by the ⚠ symbol are important for the safety . Whenever replacing these parts, be sure to use specified ones to secure the safety .
- The parts not indicated in this Parts List and those which are filled with lines —— in the Parts No. columns will not be supplied .
- P. W. Board Ass'y will not be supplied, but those which are filled with the Parts No. in the Parts No. columns will be supplied .
- As a rule, the resistors and capacitors which are indicated as shown in "HOW TO EXPRESS PARTS NUMBERS OF STANDARD PARTS" are not shown in the list of the parts on the board .
  When ordering the service parts, confirm the resistance/rated power, capacitance/rated voltage, and type of the parts, then order by the part No. indicated according to "HOW TO EXPRESS PARTS NUMBERS OF STANDARD PARTS" .

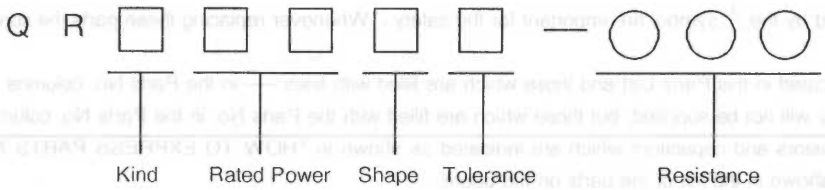
ABBREVIATIONS OF RESISTORS, CAPACITORS AND TOLERANCES

RESISTORS		CAPACITORS	
C R	Carbon Resistor	C CAP.	Ceramic Capacitor
F R	Fusible Resistor	E CAP.	Electrolytic Capacitor
P R	Plate Resistor	M CAP.	Mylar Capacitor
V R	Variable Resistor	HV CAP.	High Voltage Capacitor
HV R	High Voltage Resistor	MF CAP.	Metalized Film Capacitor
MF R	Metal Film Resistor	MM CAP.	Metalized Mylar Capacitor
MG R	Metal Glazed Resistor	MP CAP.	Metalized Polystyrol Capacitor
MP R	Metal Plate Resistor	PP CAP.	Polypropylene Capacitor
OM R	Metal Oxide Film Resistor	PS CAP.	Polystyrol Capacitor
CMF R	Coating Metal Film Resistor	TF CAP.	Thin Film Capacitor
UNF R	Non-Flammable Resistor	MPP CAP.	Metalized Polypropylene Capacitor
CH V R	Chip Variable Resistor	TAN. CAP.	Tantalum Capacitor
CH MG R	Chip Metal Glazed Resistor	CH C CAP.	Chip Ceramic Capacitor
COMP. R	Composition Resistor	BP E CAP.	Bi-Polar Electrolytic Capacitor
LPTC R	Linear Positive Temperature Coefficient Resistor	CH AL E CAP.	Chip Aluminum Electrolytic Capacitor
		CH AL BP CAP.	Chip Aluminum Bi-Polar Capacitor
		CH TAN. E CAP.	Chip Tantalum Electrolytic Capacitor
		CH AL BP E CAP.	Chip Tantalum Bi-Polar Electrolytic Capacitor

TOLERANCES									
F	G	J	K	M	N	R	H	Z	P
±1%	±2%	±5%	±10%	±20%	±30%	+30% - 10%	+50% - 10%	+80% - 20%	+100% - 0%

HOW TO EXPRESS PARTS NUMBERS OF STANDARD PARTS

■ RESISTOR



Symbol	Part Name
C	COMP.R
D	C R
S	CH MG R

Symbol	Rated Power
0 1	1 w
1 2	1/2 w
1 4	1/4 w
1 6	1/6 w
1 8	1/8 w

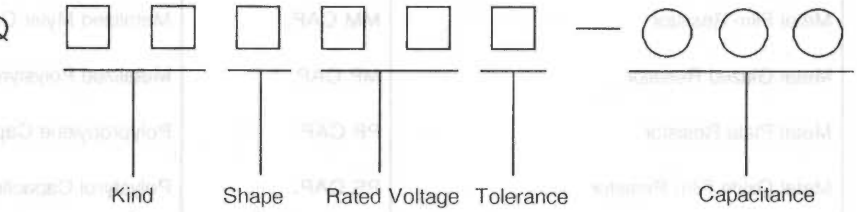
Symbol	Shape
1	Straight lead
8	Chip

Indicate with first two-figure expressed by Ω and following 0.
please note that,in case of resistance less than 10 Ω, a letter "R"will be effective as point.

EX.

2.2 Ω	=		2R2
470 Ω	=	47×10^{1} →	471
150kΩ	=	15×10^{4} →	154

■ CAPACITOR



Symbol	Part Name
CS	C CAP.
CS	CH C CAP.
ET	E CAP.
FM	M CAP.

5Figure / 6Figure	0	1	2
A		10V	100V
C		16V	160V
D			200V
E		25V	250V
H		50V	500V
J	6.3V	63V	
V		35V	

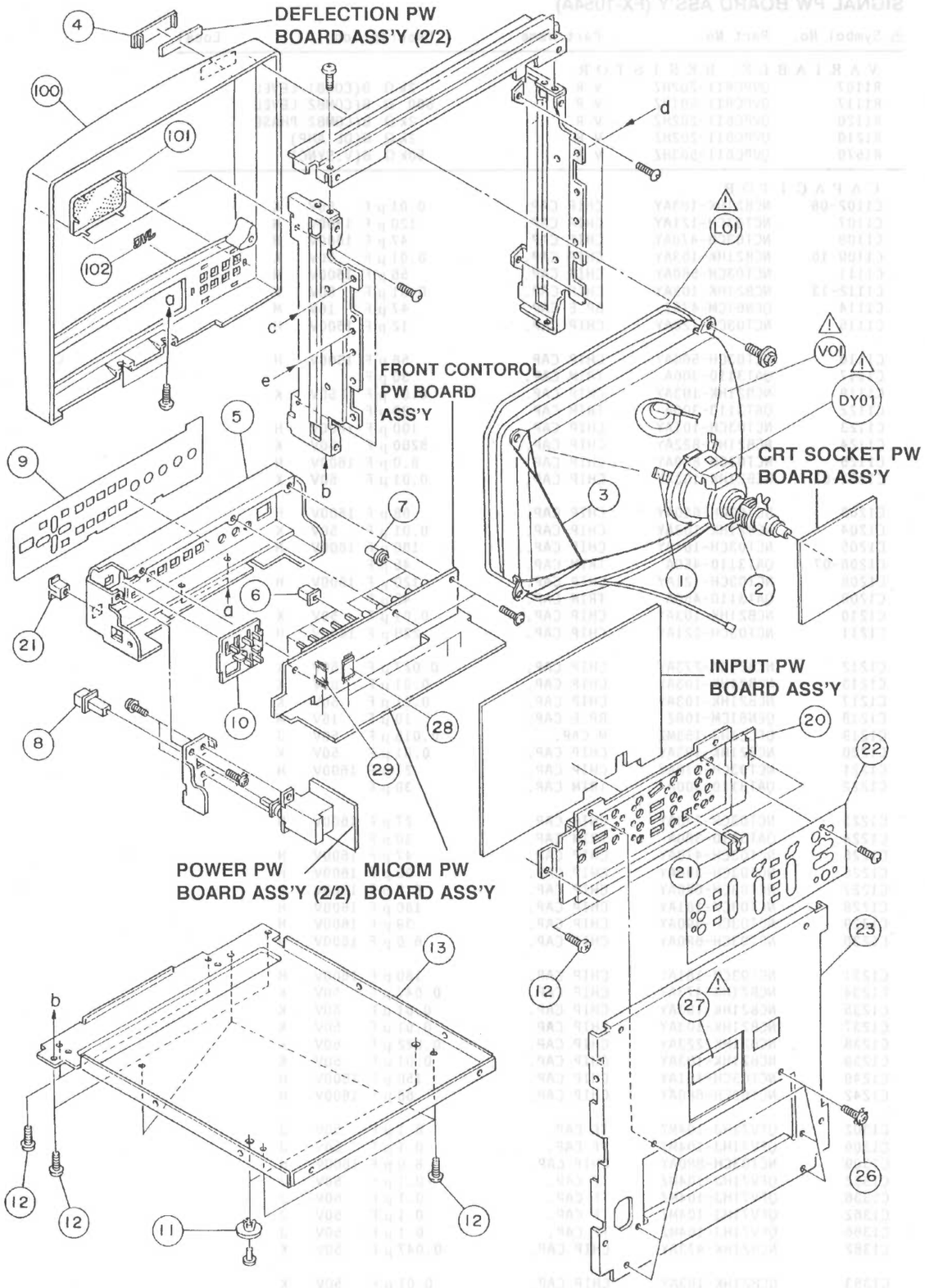
Indicate with first two-figure expressed by pF and following 0.
Please note that,in case of capacitance less than 10 pF a letter "R" will be effective as point.

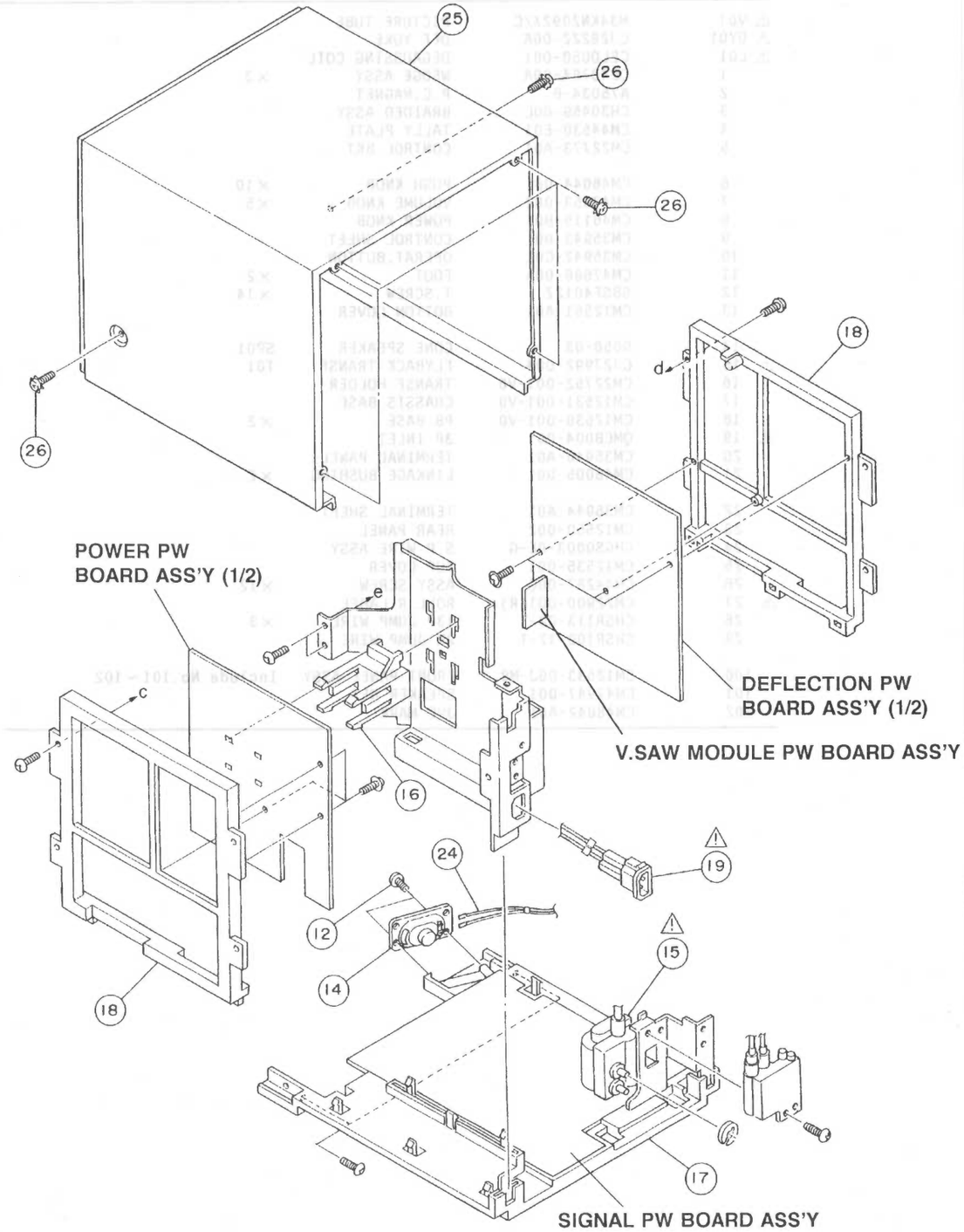
EX

5pF	=		5R0
1000pF	=	10×10^{2} →	102
47μF	=	47×10^{6} →	476

Symbol	Shape
1	Straight lead
1	Leads in the same direction
8	Chip
A	Leads in the same direction (compact part)

EXPLODED VIEW





EXPLODED VIEW PARTS LIST

⚠ Ref.No.	Part No.	Part Name	Description	Local
⚠ V01	M34KNZ092X/C	PICTURE TUBE		
⚠ DY01	CJ28222-00A	DEF YOKE		
⚠ L01	CELD050-001	DEGAUSSING COIL		
1	CE40764-00A	WEDGE ASSY	×3	
2	A75034-B	P.C.MAGNET		
3	CH30459-00C	BRAIDED ASSY		
4	CM44530-E01	TALLY PLATE		
5	CM22773-A01	CONTROL BKT		
6	CM46044-001	PUSH KNOB	×10	
7	CM47853-002	VOLUME KNOB	×5	
8	CM46115-B01	POWER KNOB		
9	CM35943-001	CONTROL SHEET		
10	CM35942-C01	OPERAT.BUTTON		
11	CM47686-00A	FOOT	×2	
12	SBSF4012Z	T.SCREW	×14	
13	CM12551-A01	BOTTOM COVER		
14	9050-03	CONE SPEAKER	SP01	
⚠ 15	CJ27992-00B	FLYBACK TRANSF.	T01	
16	CM22752-001-V0	TRANSF HOLDER		
17	CM12531-001-V0	CHASSIS BASE		
18	CM12530-001-V0	PB BASE	×2	
⚠ 19	QMCB004-001	3P INLET		
20	CM35946-A01	TERMINAL PANEL		
21	CM48005-001	LINKAGE BUSHING	×2	
22	CM35944-A01	TERMINAL SHEET		
23	CM12550-002	REAR PANEL		
24	CHGS0003-0E-G	S.P WIRE ASSY		
25	CM12535-001	TOP COVER		
26	CM44287-00C	ASSY SCREW	×12	
⚠ 27	CM22900-001(R)	ROLL R LABEL		
28	CHSR113-08-T	13P JUMP WIRE	×3	
29	CHSR109-12-T	9R JUMP WIRE		
100	CM12533-00J-M0	FRONT PANEL ASSY	Include No.101～102	
101	CM47947-001	SPEAKER NET		
102	CM48042-A01	JVC MARK		

PRINTED WIRING BOARD PARTS LIST

SIGNAL PW BOARD ASS'Y (FX-1054A)

⚠ Symbol No.	Part No.	Part Name	Description	Local
VARIABLE RESISTOR				
R1107	QVPC611-202HZ	V R	2kΩ B(COMB1 LEVEL	
R1117	QVPC611-501HZ	V R	500 Ω B(COMB2 LEVEL	
R1120	QVPC611-202HZ	V R	2kΩ B(COMB2 PHASE	
R1210	QVPC611-202HZ	V R	2kΩ B(DL AMP)	
R1570	QVPC611-503HZ	V R	50kΩ B(V.SYNC)	
CAPACITOR				
C1102-06	NCB21HK-103AY	CHIP CAP.	0.01μF 50V	K
C1107	NCT03CH-121AY	CHIP CAP.	120pF 1600V	H
C1108	NCT03CH-470AY	CHIP CAP.	47pF 1600V	H
C1109-10	NCB21HK-103AY	CHIP CAP.	0.01μF 50V	K
C1111	NCT03CH-560AY	CHIP CAP.	56pF 1600V	H
C1112-13	NCB21HK-103AY	CHIP CAP.	0.01μF 50V	K
C1114	QEN61CM-476Z	BP E CAP.	47μF 16V	M
C1115	NCT03CH-120AY	CHIP CAP.	12pF 1600V	H
C1116	NCT03CH-560AY	CHIP CAP.	56pF 1600V	H
C1117	QAT3110-300A	TRIM CAP.	30pF	
C1118	NCB21HK-103AY	CHIP CAP.	0.01μF 50V	K
C1122	QAT3110-300A	TRIM CAP.	30pF	
C1123	NCT03CH-101AY	CHIP CAP.	100pF 1600V	H
C1124	NCB21HK-822AY	CHIP CAP.	8200pF 50V	K
C1125	NCT03CH-8R0AY	CHIP CAP.	8.0pF 1600V	H
C1201-02	NCB21HK-103AY	CHIP CAP.	0.01μF 50V	K
C1203	NCT03CH-680AY	CHIP CAP.	68pF 1600V	H
C1204	NCB21HK-103AY	CHIP CAP.	0.01μF 50V	K
C1205	NCT03CH-101AY	CHIP CAP.	100pF 1600V	H
C1206-07	QAT3110-450A	TRIM CAP.	45pF	
C1208	NCT03CH-121AY	CHIP CAP.	120pF 1600V	H
C1209	QAT3110-450A	TRIM CAP.	45pF	
C1210	NCB21HK-103AY	CHIP CAP.	0.01μF 50V	K
C1211	NCT03CH-221AY	CHIP CAP.	220pF 1600V	H
C1212	NCB21HK-273AY	CHIP CAP.	0.027μF 50V	K
C1213	NCB21HK-103AY	CHIP CAP.	0.01μF 50V	K
C1217	NCB21HK-103AY	CHIP CAP.	0.01μF 50V	K
C1218	QEN61CM-106Z	BP E CAP.	10μF 16V	M
C1219	QFLC1HJ-153MZ	M CAP.	0.015μF 50V	J
C1220	NCB21HK-103AY	CHIP CAP.	0.01μF 50V	K
C1221	NCT03CH-270AY	CHIP CAP.	27pF 1600V	H
C1222	QAT3110-300A	TRIM CAP.	30pF	
C1223	NCT03CH-270AY	CHIP CAP.	27pF 1600V	H
C1224	QAT3110-300A	TRIM CAP.	30pF	
C1225	NCT03CH-470AY	CHIP CAP.	47pF 1600V	H
C1226	NCT03CH-390AY	CHIP CAP.	39pF 1600V	H
C1227	NCT03CH-6R0AY	CHIP CAP.	6.0pF 1600V	H
C1228	NCT03CH-181AY	CHIP CAP.	180pF 1600V	H
C1229	NCT03CH-390AY	CHIP CAP.	39pF 1600V	H
C1230	NCT03CH-6R0AY	CHIP CAP.	6.0pF 1600V	H
C1231	NCT03CH-181AY	CHIP CAP.	180pF 1600V	H
C1234	NCB21HK-473AY	CHIP CAP.	0.047μF 50V	K
C1235	NCB21HK-103AY	CHIP CAP.	0.01μF 50V	K
C1237	NCB21HK-103AY	CHIP CAP.	0.01μF 50V	K
C1238	NCB21HK-223AY	CHIP CAP.	0.022μF 50V	K
C1239	NCB21HK-103AY	CHIP CAP.	0.01μF 50V	K
C1240	NCT03CH-151AY	CHIP CAP.	150pF 1600V	H
C1242	NCT03CH-680AY	CHIP CAP.	68pF 1600V	H
C1302	QFV71HJ-104MZ	TF CAP.	0.1μF 50V	J
C1306	QFV71HJ-104MZ	TF CAP.	0.1μF 50V	J
C1309	NCT03CH-8R0AY	CHIP CAP.	8.0pF 1600V	H
C1332	QFV71HJ-104MZ	TF CAP.	0.1μF 50V	J
C1336	QFV71HJ-104MZ	TF CAP.	0.1μF 50V	J
C1362	QFV71HJ-104MZ	TF CAP.	0.1μF 50V	J
C1366	QFV71HJ-104MZ	TF CAP.	0.1μF 50V	J
C1382	NCB21HK-473AY	CHIP CAP.	0.047μF 50V	K
C1383	NCB21HK-103AY	CHIP CAP.	0.01μF 50V	K

⚠	Symbol No.	Part No.	Part Name	Description		Local
	CAPACITOR					
	C1402	NCB21HK-103AY	CHIP CAP.	0.01 µF	50V K	
	C1403	QEN61HM-105Z	BP E CAP.	1 µF	50V M	
	C1406-07	QFV71HJ-104MZ	TF CAP.	0.1 µF	50V J	
	C1410	QFV71HJ-104MZ	TF CAP.	0.1 µF	50V J	
	C1452	NCB21HK-103AY	CHIP CAP.	0.01 µF	50V K	
	C1453-54	NCB21HK-473AY	CHIP CAP.	0.047 µF	50V K	
	C1461	QFV71HJ-334MZ	TF CAP.	0.33 µF	50V J	
	C1462	NCB21HK-102AY	CHIP CAP.	1000 p F	50V K	
	C1463-65	QFV71HJ-224MZ	TF CAP.	0.22 µF	50V J	
	C1467	NCB21HK-103AY	CHIP CAP.	0.01 µF	50V K	
	C1469	NCB21HK-103AY	CHIP CAP.	0.01 µF	50V K	
	C1502	NCB21HK-103AY	CHIP CAP.	0.01 µF	50V K	
	C1503	QEN61CM-476Z	BP E CAP.	47 µF	16V M	
	C1504	QEN61HM-105Z	BP E CAP.	1 µF	50V M	
	C1505	NCB21HK-222AY	CHIP CAP.	2200 p F	50V K	
	C1508-09	NCB21HK-103AY	CHIP CAP.	0.01 µF	50V K	
	C1511	NCB21HK-222AY	CHIP CAP.	2200 p F	50V K	
	C1512	NCB21HK-102AY	CHIP CAP.	1000 p F	50V K	
	C1513	NCT03CH-101AY	CHIP CAP.	100 p F	1600V H	
	C1516	NCT03CH-181AY	CHIP CAP.	180 p F	1600V H	
	C1517	NCT03CH-151AY	CHIP CAP.	150 p F	1600V H	
	C1552-54	NCB21HK-473AY	CHIP CAP.	0.047 µF	50V K	
	C1555	NCT03CH-391AY	CHIP CAP.	390 p F	1600V H	
	C1556	NCT03CH-331AY	CHIP CAP.	330 p F	1600V H	
	C1557-58	NCB21HK-222AY	CHIP CAP.	2200 p F	50V K	
	C1559	NCT03CH-330AY	CHIP CAP.	33 p F	1600V H	
	C1561	NCT03CH-680AY	CHIP CAP.	68 p F	1600V H	
	C1562	NCT03CH-270AY	CHIP CAP.	27 p F	1600V H	
	C1563	NCT03CH-680AY	CHIP CAP.	68 p F	1600V H	
	C1564	NCT03CH-121AY	CHIP CAP.	120 p F	1600V H	
	C1567	QFP31HJ-153SZ	PP CAP.	0.015 µF	50V J	
	C1568	NCB21HK-222AY	CHIP CAP.	2200 p F	50V K	
	C1569	NCB21HK-183AY	CHIP CAP.	0.018 µF	50V K	
	C1570	NCB21HK-393AY	CHIP CAP.	0.039 µF	50V K	
	C1571	NCB21HK-472AY	CHIP CAP.	4700 p F	50V K	
	C1601	QEHC1CM-107MZ	E CAP.	100 µF	16V M	
	C1602	NCB21HK-103AY	CHIP CAP.	0.01 µF	50V K	
	C1603	QEHC1HM-105MZ	E CAP.	1 µF	50V M	
	C1605	QFV71HJ-104MZ	TF CAP.	0.1 µF	50V J	
	C1607	QEHC1CM-227MZ	E CAP.	220 µF	16V M	
	C1610	QFV71HJ-104MZ	TF CAP.	0.1 µF	50V J	
	C1611	NCB21HK-333AY	CHIP CAP.	0.033 µF	50V K	
	C1612	QEHC1HM-475MZ	E CAP.	4.7 µF	50V M	
	C1702	QFLC1HK-473MZ	M CAP.	0.047 µF	50V K	
⚠	C1703	QFZ0117-1001S	MPP CAP.	1000 p F	2000V ±2.5%	
	TRANSFORMER					
	T1101	CE41072-001	B.PASS TRANSF.			
	T1102	CE40176-001	DL P.TRANSF.			
	T1201	CELT034-002	B.PASS TRANSF.			
	COIL					
	L1101	CELP026-100Z	PEAKING COIL	10 µH		
	L1102	CELP026-150Z	PEAKING COIL	15 µH		
	L1103	CELP026-5R6Z	PEAKING COIL	5.6 µH		
	L1104	CELP026-270Z	PEAKING COIL	27 µH		
	L1201-02	CELP026-8R2Z	PEAKING COIL	8.2 µH		
	L1203	CELP026-390Z	PEAKING COIL	39 µH		
	L1204	CELP026-4R7Z	PEAKING COIL	4.7 µH		
	L1206-07	CELP026-820Z	PEAKING COIL	82 µH		
	L1601	CELP026-4R7Z	PEAKING COIL	4.7 µH		
	DIODE					
	D1101	MA151K-W	SI.DIODE			
	D1201-03	MA151K-W	SI.DIODE			

⚠ Symbol No.	Part No.	Part Name	Description	Local
D I O D E				
D1451-56	MA3082(M)-X	CHIP ZENER DIODE		
D1501	MA151K-W	SI.DIODE		
D1502	MA3047(L)-W	ZENER DIODE		
D1551	MA151K-W	SI.DIODE		
D1702	1SS81-T5	SI.DIODE		
T R A N S I S T O R				
Q1101-05	2SC2712(YG)-X	CHIP TRANSISTOR		
Q1106-07	2SA1162(YG)-X	CHIP TRANSISTOR		
Q1108-15	2SC2712(YG)-X	CHIP TRANSISTOR		
Q1116-17	2SA1162(YG)-X	CHIP TRANSISTOR		
Q1118	2SC2712(YG)-X	CHIP TRANSISTOR		
Q1201-08	2SC2712(YG)-X	CHIP TRANSISTOR		
Q1210	2SC2712(YG)-X	CHIP TRANSISTOR		
Q1212	2SC2712(YG)-X	CHIP TRANSISTOR		
Q1301-02	2SC2712(YG)-X	CHIP TRANSISTOR		
Q1303	2SK374(Q)-W	F.E.T.		
Q1304-06	2SC2712(YG)-X	CHIP TRANSISTOR		
Q1307	2SA1162(YG)-X	CHIP TRANSISTOR		
Q1308	2SC2712(YG)-X	CHIP TRANSISTOR		
Q1331-32	2SC2712(YG)-X	CHIP TRANSISTOR		
Q1333	2SK374(Q)-W	F.E.T.		
Q1334	2SC2712(YG)-X	CHIP TRANSISTOR		
Q1361-62	2SC2712(YG)-X	CHIP TRANSISTOR		
Q1363	2SK374(Q)-W	F.E.T.		
Q1364	2SC2712(YG)-X	CHIP TRANSISTOR		
Q1451-53	2SC2712(YG)-X	CHIP TRANSISTOR		
Q1454	2SA1162(YG)-X	CHIP TRANSISTOR		
Q1455-62	2SC2712(YG)-X	CHIP TRANSISTOR		
Q1501	2SA1162(YG)-X	CHIP TRANSISTOR		
Q1502-05	2SC2712(YG)-X	CHIP TRANSISTOR		
Q1506	2SA1162(YG)-X	CHIP TRANSISTOR		
Q1507-09	2SC2712(YG)-X	CHIP TRANSISTOR		
Q1510	2SA1162(YG)-X	CHIP TRANSISTOR		
Q1511-15	2SC2712(YG)-X	CHIP TRANSISTOR		
Q1551	2SA1162(YG)-X	CHIP TRANSISTOR		
I C				
IC1101	TC4053BP	I.C(DIGI-MOS)		
IC1201	AN5625N	I.C(MONO-ANA)		
IC1202	TC4053BP	I.C(DIGI-MOS)		
IC1203	AN5640	I.C(MONO-ANA)		
IC1204	UPC358HA	I.C(MONO-ANA)		
IC1301-03	UPC358HA	I.C(MONO-ANA)		
IC1304-05	TC4053BP	I.C(DIGI-MOS)		
IC1401	TDA4672	I.C(MONO-ANA)		
IC1402	TDA4680/V6	I.C(DIGI-OTHER)		
IC1403	AN7808	I.C.		
IC1501	TC4053BP	I.C(DIGI-MOS)		
IC1502-08	TC4538BP	I.C(DIGI-MOS)		
IC1509	TC4053BP	I.C(DIGI-MOS)		
IC1510	HD74LS00P	I.C(DIGI-OTHER)		
IC1511	HD74LS05P	I.C(DIGI-OTHER)		
IC1601	AN5265	I.C.		
O T H E R S				
CN100T	CHC106T-13WTA	S TRAP CONNECTOR		
CN100U	CHC106T-13WTA	S TRAP CONNECTOR		
CN100V	CHC106T-13WTA	S TRAP CONNECTOR		
CN10SA	CHC106T-09WTA	S TRAP CONNECTOR		
DL1101	CE41577-002	DELAY LINE		
DL1102	CE40959-001	DELAY LINE		
DL1201	CE41489-001	DELAY LINE(1H)		
X1201	CE40668-001	CRYSTAL		
X1202	CE41953-001	CRYSTAL		

DEFLECTION PW BOARD ASS'Y (FX-2028A)

⚠	Symbol No.	Part No.	Part Name	Description			Local
	V A R I A B L E R E S I S T O R						
	R2313	QVPC611-503HZ	V R	50kΩ B(SCREEN)			
	R2416	QVPC611-102HZ	V R	1kΩ B(V.CENTER)			
	R2503	QVPC611-502HZ	V R	5kΩ B(H.HOLD)			
	R2582	QVPC611-303HZ	V R	30kΩ B(H.PHASE)			
	R2612	QVPC611-502HZ	V R	5kΩ B(HVC)			
	R E S I S T O R						
	R2405	QRV141F-2611AY	MF R	2.61kΩ	1/4W	F	
	R2419	QRX029J-1R0	MF R	1.0 Ω	2W	J	
	R2420	QRG029J-270	OM R	27 Ω	2W	J	
	R2422	QRG019J-101S	OM R	100 Ω	1W	J	
	R2512-13	QRF074K-4R7	UNF R	4.7 Ω	7W	K	
	R2515	QRG029J-272	OM R	2.7kΩ	2W	J	
	R2520	QRG029J-221	OM R	220 Ω	2W	J	
	R2524	QRX029J-1R8	MF R	1.8 Ω	2W	J	
	R2530	QRX029J-8R2	MF R	8.2 Ω	2W	J	
	R2531	QRX029J-5R6	MF R	5.6 Ω	2W	J	
	R2532	QRG029J-471	OM R	470 Ω	2W	J	
	R2548-49	QRG029J-221	OM R	220 Ω	2W	J	
	R2550	QRG029J-222	OM R	2.2kΩ	2W	J	
⚠	R2714	QRV141F-2702AY	MF R	27kΩ	1/4W	F	
⚠	R2715	QRV141F-6801AY	MF R	6.8kΩ	1/4W	F	
	R2801	QRG029J-100	OM R	10 Ω	2W	J	
	C A P A C I T O R						
	C2301	QFLC1HK-102MZ	M CAP.	1000 p F	50V	K	
	C2302	QEHC1HM-106MZ	E CAP.	10 μ F	50V	M	
	C2303	QFZ0117-4701S	MPP CAP.	4700 p F	2000V	±2.5%	
	C2304	QEHC1HM-476MZ	E CAP.	47 μ F	50V	M	
	C2305	QEN61CM-106Z	BP E CAP.	10 μ F	16V	M	
	C2402	QFLC1HK-823MZ	M CAP.	0.082 μ F	50V	K	
	C2406	QEHC1CM-107MZ	E CAP.	100 μ F	16V	M	
	C2408	QEHC1HM-227MZ	E CAP.	220 μ F	50V	M	
	C2409	QFV71HJ-104MZ	TF CAP.	0.1 μ F	50V	J	
	C2410	QFLB2AK-154M	M CAP.	0.15 μ F	100V	K	
	C2412	QFLC2AJ-102MZ	M CAP.	1000 p F	100V	J	
	C2413	QFLC1HK-153MZ	M CAP.	0.015 μ F	50V	K	
	C2415	QEHC1VM-107MZ	E CAP.	100 μ F	35V	M	
	C2416-17	QEHC1EM-108MZ	E CAP.	1000 μ F	25V	M	
	C2418	QEHC1EM-477MZ	E CAP.	470 μ F	25V	M	
	C2419	QEHC1EM-227MZ	E CAP.	220 μ F	25V	M	
	C2420	QEHC1CM-337MZ	E CAP.	330 μ F	16V	M	
	C2421	QEHC1EM-477MZ	E CAP.	470 μ F	25V	M	
	C2422	QEHB1VM-108M	E CAP.	1000 μ F	35V	M	
	C2423	QEHC1CM-107MZ	E CAP.	100 μ F	16V	M	
	C2502	QFP31HJ-332SZ	PP CAP.	3300 p F	50V	J	
	C2503	QFLC1HJ-222MZ	M CAP.	2200 p F	50V	J	
	C2504	QFV71HJ-824MZ	TF CAP.	0.82 μ F	50V	J	
	C2505	QFLC1HJ-822MZ	M CAP.	8200 p F	50V	J	
	C2510	QEHB2AM-477M	E CAP.	470 μ F	100V	M	
	C2511	QFLC1HK-563MZ	M CAP.	0.056 μ F	50V	K	
	C2512	QFLC1HK-153MZ	M CAP.	0.015 μ F	50V	K	
	C2514	QFLC2AK-104MZ	M CAP.	0.1 μ F	50V	K	
⚠	C2518	QFZ0119-155S	MPP CAP.	1.5 μ F	200V	±3%	
⚠	C2519	QFZ0119-155S	MPP CAP.	1.5 μ F	200V	±3%	
	C2524	QFLC1HK-104MZ	M CAP.	0.1 μ F	50V	K	
⚠	C2525	QFZ0117-1801S	MPP CAP.	1800 p F	2000V	±2.5%	
	C2526	QEHC1EM-108MZ	E CAP.	1000 μ F	25V	M	
	C2527	QFLC1HK-473MZ	M CAP.	0.047 μ F	50V	K	
	C2528	QEHC1CM-108MZ	E CAP.	1000 μ F	16V	M	
	C2529	QEHC1EM-108MZ	E CAP.	1000 μ F	25V	M	
⚠	C2530	QFZ0117-7001S	MPP CAP.	7000 p F	2000V	±2.5%	
⚠	C2531	QFZ0117-3001S	MPP CAP.	3000 p F	2000V	±2.5%	
⚠	C2532	QFZ0117-7001S	MPP CAP.	7000 p F	2000V	±2.5%	
	C2533	QEHC1EM-108MZ	E CAP.	1000 μ F	25V	M	
	C2537-38	QEZ0195-475MZ	E CAP.	4.7 μ F	50V	M	

⚠	Symbol No.	Part No.	Part Name	Description			Local
	CAPACITOR						
	C2539	QEHB1CM-228M	E CAP.	2200 μF	16V	M	
	C2555-56	QCT25CH-680Z	C CAP.	68 pF	50V	J	
	C2557	QCT25CH-560Z	C CAP.	56 pF	50V	J	
	C2558	QFV71HJ-104MZ	TF CAP.	0.1 μF	50V	J	
	C2561	QEN61HM-474Z	BP E CAP.	0.47 μF	50V	M	
	C2562	QEN61HM-475Z	BP E CAP.	4.7 μF	50V	M	
	C2601	QFLC1HJ-103MZ	M CAP.	0.01 μF	50V	J	
	C2602	QEHC1CM-107MZ	E CAP.	100 μF	16V	M	
	C2603	QFV71HJ-104MZ	TF CAP.	0.1 μF	50V	J	
	C2701	QETC1HM-106Z	E CAP.	10 μF	50V	M	
	C2702	QEHC1HM-107MZ	E CAP.	100 μF	50V	M	
	C2703	QEHC1CM-337MZ	E CAP.	330 μF	16V	M	
	C2704	QEHC1EM-107MZ	E CAP.	100 μF	25V	M	
	C2705	QEN61EM-107Z	BP E CAP.	100 μF	25V	M	
	C2801	QEHB1VM-108M	E CAP.	1000 μF	35V	M	
	TRANSFORMER						
⚠	T2502	CE42034-001	H.DRIVE TRANSF.				
	T2505	CE41916-00B	CHOPPER TRANSF				
	COIL						
⚠	L2502	CE41029-00A	LINEARITY COIL				
	L2701	CJ30030-028	HEATER CHOKE				
	DIODE						
	D2301	RU4DS-C1	SI.DIODE				
	D2302	1SS133-T2	SI.DIODE				
	D2303	MA4062(M)-T2	ZENER DIODE				
	D2304	1SS133-T2	SI.DIODE				
	D2305	RD9.1ES(B3)-T2	ZENER DIODE				
	D2306-09	1SS133-T2	SI.DIODE				
	D2310	RD3.3ES(B2)-T2	ZENER DIODE				
	D2401	1SS133-T2	SI.DIODE				
	D2402	RGP10J(C1)-T3	SI.DIODE				
	D2404	RU30-C1	SI.DIODE				
	D2405	RD3.9ES(B2)-T2	ZENER DIODE				
	D2406	RD75E(B)-T5	ZENER DIODE				
	D2407	1SS133-T2	SI.DIODE				
⚠	D2501	ERD07-15-L	SI.DIODE				
	D2502	1SS133-T2	SI.DIODE				
	D2504-05	ERD07-15-L	SI.DIODE				
	D2506-07	RU3AM-LFC4	SI.DIODE				
	D2509	RU4AM-C1	SI.DIODE				
	D2510	MA165-T2	SI.DIODE				
	D2512	1SS81-T2	SI.DIODE				
	D2513	MA4220(M)-T2	ZENER DIODE				
	D2515	LD-1203DU	L.E.D.(ORG)	TALLY			
	D2601-02	1SS81-T2	SI.DIODE				
	D2603	MA4047(M)-T2	ZENER DIODE				
⚠	D2701	MA4068(N)C1-T2	ZENER DIODE				
	D2702	1SS82-T2	SI.DIODE				
	D2703-04	1SS133-T2	SI.DIODE				
	D2705	1SS146-T2	SI.DIODE				
	D2706	MA4110(M)-T2	ZENER DIODE				
	D2708	1SS133-T2	SI.DIODE				
	D2709	1SS146-T2	SI.DIODE				
	D2711	1SS133-T2	SI.DIODE				
	TRANSISTOR						
	Q2301	2SC4632	SI.TRANSISTOR				
	Q2302-04	2SC1815(YG)-T	SI.TRANSISTOR				
	Q2401	2SC3311A(Q)-T	SI.TRANSISTOR				
	Q2402-05	2SC1815(YG)-T	SI.TRANSISTOR				
	Q2501	2SC3187-T	SI.TRANSISTOR				
⚠	Q2502	2SC4589-C1	SI.TRANSISTOR	H.OUT			
	Q2504	2SA1309A(R)-T	SI.TRANSISTOR				
	Q2506	2SC1815(YG)-T	SI.TRANSISTOR				

⚠	Symbol No.	Part No.	Part Name	Description	Local
	TRANSISTOR				
	Q2510	2SA1309A(R)-T	SI.TRANSISTOR		
	Q2551-52	2SC1815(YG)-T	SI.TRANSISTOR		
	Q2554	2SC1815(Y)-T	SI.TRANSISTOR		
	Q2556	2SC1815(YG)-T	SI.TRANSISTOR		
	Q2601	2SC1959(Y)-T	SI.TRANSISTOR		
	Q2603	2SC1959(Y)-T	SI.TRANSISTOR		
	Q2701	2SC1815(YG)-T	SI.TRANSISTOR		
	IC				
	IC2301	NJM4560D	I.C(MONO-ANA)		
	IC2303	AN79L05-Y	I.C.		
	IC2401	UPC1498H	I.C.(MONO-ANA)		
	IC2403	NJM4560D	I.C(MONO-ANA)		
	IC2404	AN7812F	I.C(MONO-ANA)		
	IC2405	TA79012S	I.C(MONO-ANA)		
	IC2406	TA78L009AP-Y	I C		
	IC2407	AN7812F	I.C(MONO-ANA)		
	IC2408	AN7805F	I.C(MONO-ANA)		
	IC2501	HA11423	I.C(MONO-ANA)		
	IC2551	TC4066BP	I.C(DIGI-MOS)		
	IC2553	TC4538BP	I.C(DIGI-MOS)		
	IC2554-55	AN7812F	I.C(MONO-ANA)		
	IC2601	NJM4560D	I.C(MONO-ANA)		
	OTHERS				
⚠	CP2001	ICP-N75-Y	I.C.PROTECT		
⚠	FR2301	QRH127J-182M	F R	1.8kΩ 1/2W J	
⚠	FR2426	QRH127K-R22M	F R	0.22 Ω 1/2W K	
⚠	FR2525	QRH127J-1R0M	F R	1.0 Ω 1/2W J	
⚠	FR2702	QRH127K-R22M	F R	0.22 Ω 1/2W K	
⚠	FR2704	QRH127J-4R7M	F R	4.7 Ω 1/2W J	
	S2501	QSS1F22-C09	SLIDE SWITCH	FREE RUN	

FRONT CONTROL PW BOARD ASS'Y (FX-4030A)

⚠	Symbol No.	Part No.	Part Name	Description	Local
	VARIABLE RESISTOR				
	VR4101	QVGA003-CB14A	V R	10kΩ B(BRIGHT)	
	VR4102	QVGA003-CB14A	V R	10kΩ B(CONTRAST)	
	VR4103	QVGA003-CB14A	V R	10kΩ B(CHROMA)	
	VR4104	QVGA003-CB14A	V R	10kΩ B(PHASE)	
	VR4105	QVGA004-CB14A	V R	10kΩ B(VOLUME)	
	CAPACITOR				
	C4101	QEKC0JM-107MZ	E CAP.	100μF 6.3V M	
	C4102	QCZ0207-104A	C CAP.	0.1μF 50V Z	
	DIODE				
	D4101-14	MA165-T2	SI.DIODE		
	D4115-19	RD5.6ES(B3)-T2	ZENER DIODE		
	D4120	GL5KG8	L.E.D.	POWER	
	D4121-23	MA165-T2	SI.DIODE		
	OTHERS				
		CM48038-001	LED HOLDER		
	S4101	QSTL535-C01	PUSH SWITCH	UNDER SCAN etc	
	S4102	QSTL535-C02	PUSH SWITCH	VIDEO A/B,RGB,etc	
	S4103	QSP4H11-C12Z	PUSH SWITCH	MENU	
	S4104	QSP4H11-C12Z	PUSH SWITCH	ENTER	
	S4105	QSP4H11-C12Z	PUSH SWITCH	UP	
	S4106	QSP4H11-C12Z	PUSH SWITCH	DOWN	
	S4107	QSP4H11-C12Z	PUSH SWITCH	LEFT	
	S4108	QSP4H11-C12Z	PUSH SWITCH	RIGHT	
	S4109	QSP4H11-C12Z	PUSH SWITCH	DEGAUSS	

CRT SOCKET PW BOARD ASS'Y (FX-3029A)

⚠	Symbol No.	Part No.	Part Name	Description			Local
	RESISTOR						
	R3310-15	QRG029J-103	OM R	10k Ω	2W	J	
⚠	R3322	QRD149J-102S	C R	1k Ω	1/4W	J	
⚠	R3323	QRD149J-102S	C R	1k Ω	1/4W	J	
⚠	R3324	QRD149J-102S	C R	1k Ω	1/4W	J	
	R3507	QRG029J-822	OM R	8.2k Ω	2W	J	
	CAPACITOR						
	C3321	QETC2EM-105Z	E CAP.	1 μF	250V	M	
	C3501	QETC2EM-105Z	E CAP.	1 μF	250V	M	
	C3503	QCZ0121-102M	C CAP.	1000 pF	3000V	P	
	C3505	QFP32GK-563M	PP CAP.	0.056 μF	400V	K	
	COIL						
	L3302	CELP026-4R7Z	PEAKING COIL	4.7 μH			
	L3304-06	CELP026-470Z	PEAKING COIL	47 μH			
	L3501	A49468-562	PEAKING COIL	5600 μH			
	DIODE						
	D3301-03	MA165-T2	SI.DIODE				
	D3304-06	1SS244-T2	SI.DIODE				
	D3307-09	1SS120-T2	SI DIODE				
	D3316	MA4075(M)-T2	ZENER DIODE				
	D3501-02	RGP10J(C1)-T3	SI.DIODE				
	D3503-04	1SS146-T2	SI.DIODE				
	TRANSISTOR						
	Q3301-03	2SC4502-T	SI.TRANSISTOR				
	Q3304-06	2SC4544-C1	SI.TRANSISTOR				
	Q3307-09	2SA1321-T	SI TRANSISTOR				
	Q3310-12	2SC3334-T	SI TRANSISTOR				
	Q3501	2SC1505(MLK)	SI.TRANSISTOR				
	OTHERS						
⚠	SK3001	CE42446-001	CRT SOCKET				

MICOM PW BOARD ASS'Y (FX-5012A)

⚠	Symbol No.	Part No.	Part Name	Description			Local
	CAPACITOR						
	C5101	QEKC1CM-476MZ	E CAP.	47 μF	16V	M	
	C5102	NCB21HK-103AY	CHIP CAP.	0.01 μF	50V	K	
	C5103-04	NCF21HZ-104AY	CHIP CAP.	0.1 μF	50V	Z	
	C5105-09	NCB21HK-103AY	CHIP CAP.	0.01 μF	50V	K	
	C5110-12	NCF21HZ-104AY	CHIP CAP.	0.1 μF	50V	Z	
	C5113	QEKC1CM-476MZ	E CAP.	47 μF	16V	M	
	C5114	NCT03CH-330AY	CHIP CAP.	33 pF	1600V	H	
	C5116	NCF21HZ-104AY	CHIP CAP.	0.1 μF	50V	Z	
	C5117	QEKC0JM-107MZ	E CAP.	100 μF	6.3V	M	
	C5118	NCF21HZ-104AY	CHIP CAP.	0.1 μF	50V	Z	
	C5119	QEKC0JM-107MZ	E CAP.	100 μF	6.3V	M	
	C5120	NCF21HZ-104AY	CHIP CAP.	0.1 μF	50V	Z	
	C5121	QEKC0JM-107MZ	E CAP.	100 μF	6.3V	M	
	C5122	NCF21HZ-104AY	CHIP CAP.	0.1 μF	50V	Z	
	C5123	QEKC1CM-476MZ	E CAP.	47 μF	16V	M	
	C5124	NCF21HZ-104AY	CHIP CAP.	0.1 μF	50V	Z	
	C5126	NCF21HZ-104AY	CHIP CAP.	0.1 μF	50V	Z	
	C5127	NCT03CH-7R0AY	CHIP CAP.	7.0 pF	1600V	H	
	C5128-29	NCF21HZ-104AY	CHIP CAP.	0.1 μF	50V	Z	
	C5201-03	QEKC1HM-105GMZ	E CAP.	1 μF	50V	M	
	C5301	QEKC1CM-106GMZ	E CAP.	10 μF	16V	M	
	C5302	QEKC1HM-224GMZ	E CAP.	0.22 μF	50V	M	
	C5303	NCB21HK-223AY	CHIP CAP.	0.022 μF	50V	K	
	C5304	QEKC1HM-105GMZ	E CAP.	1 μF	50V	M	

⚠ Symbol No.	Part No.	Part Name	Description	Local
CAPACITOR				
C5401-03	QEKC1HM-105GMZ	E CAP.	1μF 50V M	
COIL				
L5101-02	CELP008-100YL	CHIP P COIL	10μH	
L5103	CELP008-330YL	INDUCTOR	33μH	
DIODE				
D5101-11	MA3056(L)-W	ZENER DIODE		
D5112	MA3043-W	ZENER DIODE		
D5113	MA151K-W	SI.DIODE		
D5114	MA151K-X	DIODE		
D5301	MA151K-W	SI.DIODE		
D5501-04	MA3056(L)-W	ZENER DIODE		
D5701	MA3150(M)-X	ZENER DIODE		
D5702-04	MA3056(L)-W	ZENER DIODE		
D5705-06	MA3150(M)-X	ZENER DIODE		
D5707-08	MA3056(L)-W	ZENER DIODE		
D5709-11	MA3150(M)-X	ZENER DIODE		
D5712	MA8130-W	ZENER DIODE		
D5713	MA3056(L)-W	ZENER DIODE		
D5714	MA8056-W	ZENER DIODE		
D5715	MA3056(L)-W	ZENER DIODE		
D5716	MA8056-W	ZENER DIODE		
D5717	MA3150(M)-X	ZENER DIODE		
D5718	MA3056(L)-W	ZENER DIODE		
D5719	MA8130-W	ZENER DIODE		
D5720-22	MA3056(L)-W	ZENER DIODE		
D5723	MA8056-W	ZENER DIODE		
D5724	MA3150(M)-X	ZENER DIODE		
D5725	MA8130-W	ZENER DIODE		
D5726	MA3056(L)-W	ZENER DIODE		
D5727	MA8056-W	ZENER DIODE		
D5728-32	MA3056(L)-W	ZENER DIODE		
TRANSISTOR				
Q5101-06	2SC2712(YG)-X	CHIP TRANSISTOR		
Q5201	2SC2712(YG)-X	CHIP TRANSISTOR		
Q5202	2SA1162(YG)-X	CHIP TRANSISTOR		
Q5203	2SC2712(YG)-X	CHIP TRANSISTOR		
Q5204	2SA1162(YG)-X	CHIP TRANSISTOR		
Q5205	2SC2712(YG)-X	CHIP TRANSISTOR		
Q5206	2SA1162(YG)-X	CHIP TRANSISTOR		
Q5207-10	2SC2712(YG)-X	CHIP TRANSISTOR		
Q5301-03	2SA1162(YG)-X	CHIP TRANSISTOR		
Q5304	2SC2712(YG)-X	CHIP TRANSISTOR		
Q5401	2SC2712(YG)-X	CHIP TRANSISTOR		
IC				
IC5101	MB89647PF-113	I.C(MICRO-COMP)		
IC5102	MB90077PF-109	I.C(MICRO-COMP)		
IC5103	ST24BM-1400	EEPROM		
IC5105	GP1U781Q	IFR DETECT UNIT		
IC5106	HD74HC158FP	I.C(DIGI-OTHER)		
IC5108	HD74HC32FP	I.C.		
IC5401	UPC4558G-W	I.C(MONO-ANA)		
OTHERS				
CF5101	CST8.00MTW	CER.RESONATOR		
CN500T	CHC106T-13WTA	S TRAP CONNECTOR		
CN500U	CHC106T-13WTA	S TRAP CONNECTOR		
CN500V	CHC106T-13WTA	S TRAP CONNECTOR		
CN50SA	CHC106T-09WTA	S TRAP CONNECTOR		

INPUT PW BOARD ASS'Y (FX-6045A)

⚠ Symbol No.	Part No.	Part Name	Description	Local
RESISTOR				
R6201	QRV141F-75R0AY	MF R	75 Ω 1/4W	F
R6211	QRV141F-75R0AY	MF R	75 Ω 1/4W	F
R6231	QRV141F-75R0AY	MF R	75 Ω 1/4W	F
R6301	QRV141F-75R0AY	MF R	75 Ω 1/4W	F
R6701	QRV141F-75R0AY	MF R	75 Ω 1/4W	F
R6731	QRV141F-75R0AY	MF R	75 Ω 1/4W	F
R6761	QRV141F-75R0AY	MF R	75 Ω 1/4W	F
CAPACITOR				
C6201	QEKC1HM-475GMZ	E CAP.	4.7 µF 50V	M
C6203	QEKC1CM-336MZ	E CAP.	33 µF 16V	M
C6205	QEKC1HM-475GMZ	E CAP.	4.7 µF 50V	M
C6207	QEKC1CM-336MZ	E CAP.	33 µF 16V	M
C6220	QEKC1HM-475GMZ	E CAP.	4.7 µF 50V	M
C6231	QFLC1HK-333MZ	M CAP.	0.033 µF 50V	K
C6281-84	QEKC1CM-107MZ	E CAP.	100 µF 16V	M
C6301	QFLC1HJ-103MZ	M CAP.	0.01 µF 50V	J
C6751	QEKC1HM-475GMZ	E CAP.	4.7 µF 50V	M
C6783-84	QFLC1HJ-104MZ	M CAP.	0.1 µF 50V	J
COIL				
L6701	CELP026-330Z	PEAKING COIL	33 µH	
L6702	CELP026-680Z	PEAKING COIL	68 µH	
L6703	CELP026-330Z	PEAKING COIL	33 µH	
L6704	CELP026-680Z	PEAKING COIL	68 µH	
DIODE				
D6201-09	1SS133-T2	SI.DIODE		
D6211-12	1SS133-T2	SI.DIODE		
D6301-03	1SS133-T2	SI.DIODE		
D6701-12	1SS133-T2	SI.DIODE		
D6801-08	1SS133-T2	SI.DIODE		
TRANSISTOR				
Q6201-03	2SC1740S(R)-T	SI.TRANSISTOR		
Q6204	2SC1740S(QR)-T	SI.TRANSISTOR		
Q6206	2SC1740S(QR)-T	SI.TRANSISTOR		
Q6211	2SK301(Q)-T	F.E.T.		
Q6301	2SC1740S(R)-T	SI.TRANSISTOR		
Q6302-03	2SC1740S(QR)-T	SI.TRANSISTOR		
Q6601-03	2SC1740S(R)-T	SI.TRANSISTOR		
Q6604-06	2SC1740S(QR)-T	SI.TRANSISTOR		
Q6701-03	2SC1740S(R)-T	SI.TRANSISTOR		
Q6704	2SC1740S(QR)-T	SI.TRANSISTOR		
Q6706	2SC1740S(QR)-T	SI.TRANSISTOR		
Q6707	2SA933S(QR)-T	SI.TRANSISTOR		
Q6708-09	2SC1740S(QR)-T	SI.TRANSISTOR		
Q6711	2SC1740S(QR)-T	SI.TRANSISTOR		
Q6712	2SA933S(QR)-T	SI.TRANSISTOR		
Q6713-14	2SC1740S(QR)-T	SI.TRANSISTOR		
Q6716-20	2SC1740S(QR)-T	SI.TRANSISTOR		
IC				
IC6201	LA7016	I.C(MONO-ANA)		
IC6601	TC4066BP	I.C(DIGI-MOS)		
IC6701	TC4053BP	I.C(DIGI-MOS)		
IC6801	HD74LS04P	I.C(DIGI-OTHER)		
OTHERS				
J6201	CEMB010-004	BNC CONNECTOR	VIDEO A/B /SYNC IN	
J6202	CEMB010-004	BNC CONNECTOR	VIDEO A/B /SYNC OUT	
J6301	QMCC006-C01	DIN CONNECTOR	Y/C IN	
J6302	QMCC006-C01	DIN CONNECTOR	Y/C OUT	
J6601	CEMN070-001	PIN JACK	AUDIO A OUT/IN	
J6602	CEMN070-001	PIN JACK	AUDIO B OUT/IN	
J6603	CEMN070-001	PIN JACK	AUDIO C OUT/IN	
J6701	CEMB010-004	BNC CONNECTOR	G/Y/B/B-Y/R/R-Y IN	

⚠ Symbol No.	Part No.	Part Name	Description	Local
OTHERS				
J6702	CEMB010-004	BNC CONNECTOR	G/Y/B/B-Y/R/R-Y OUT	
J6801	QMCC502-C01	DIN JACK		
S6201-03	QSS4C22-C02	SLIDE SWITCH	OPEN↔75Ω	
S6701-04	QSS4C22-C02	SLIDE SWITCH	OPEN↔75Ω	

POWER PW BOARD ASS'Y (FX-9040A)

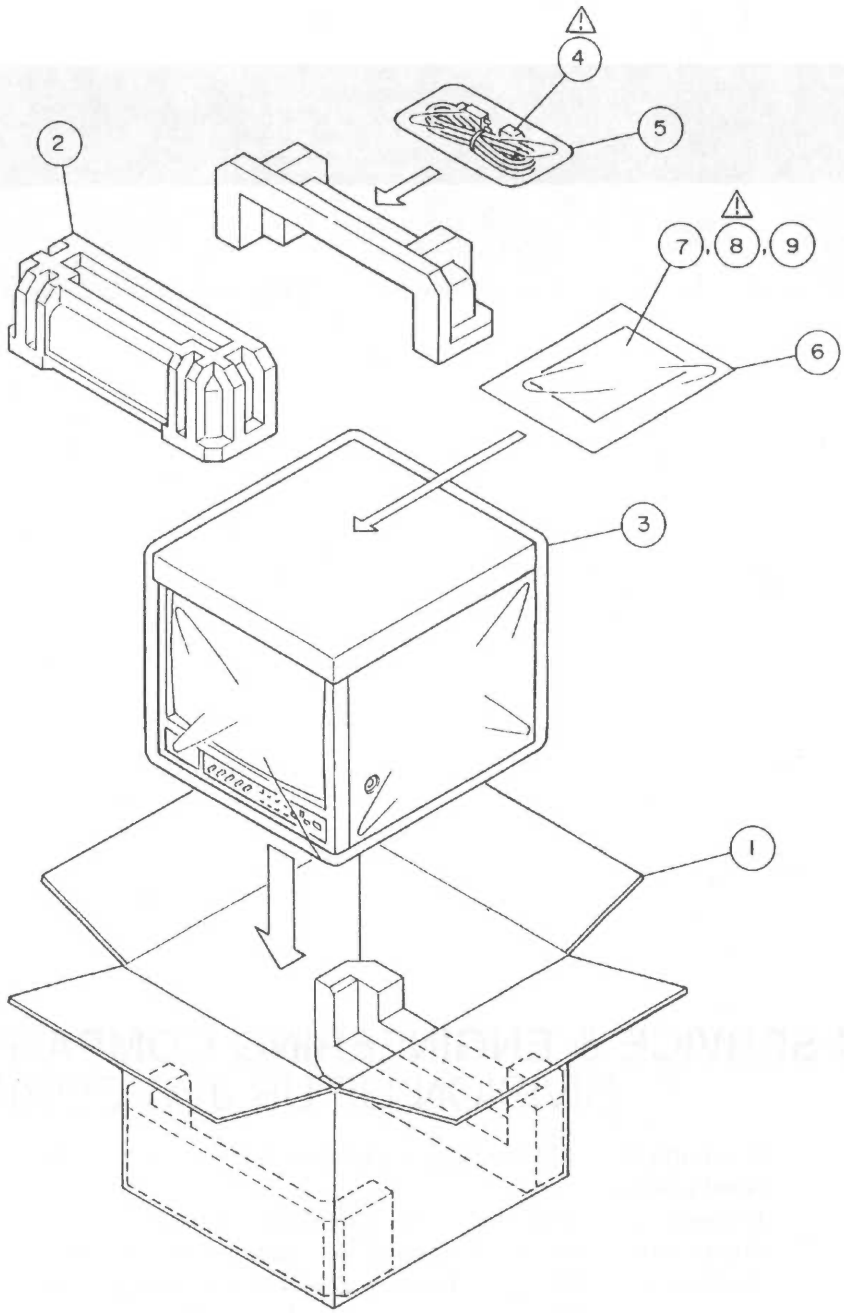
⚠ Symbol No.	Part No.	Part Name	Description	Local
VARIABLE RESISTOR				
R9038	QVPC611-102HZ	V R	1kΩ B(B1 ADJ.)	
RESISTOR				
⚠ R9002	QRD122J-474S	C R	470kΩ 1/2W J	
R9005-06	QRD123J-104SX	C R	100kΩ 1/2W J	
R9014	QRM059K-R22	MP R	0.22 Ω 5W K	
R9015	QRG039J-563A	OM R	56kΩ 3W J	
R9016	QRD123J-182SX	C R	1.8kΩ 1/2W J	
R9030	QRD123J-100SX	C R	10 Ω 1/2W J	
⚠ R9034	QRV141F-1502AY	MF R	15kΩ 1/4W F	
⚠ R9035	QRV141F-1002AY	MF R	10kΩ 1/4W F	
⚠ R9037	QRV141F-3901AY	MF R	3.9kΩ 1/4W F	
R9039	QRD123J-154SX	C R	150kΩ 1/2W J	
R9041	QRD123J-154SX	C R	150kΩ 1/2W J	
R9042	QRD123J-183SX	C R	18kΩ 1/2W J	
R9043	QRD123J-184SX	C R	180kΩ 1/2W J	
R9044	QRV141F-3901AY	MF R	3.9kΩ 1/4W F	
R9045	QRV141F-2701AY	MF R	2.7kΩ 1/4W F	
R9048	QRV141F-1501AY	MF R	1.5kΩ 1/4W F	
R9053	QRX029J-R39A	MF R	0.39 Ω 2W J	
R9054	QRD123J-3R3SX	C R	3.3 Ω 1/2W J	
R9060	QRF154K-4R7	UNF R	4.7 Ω 15W K	
R9061-64	QRG039J-123	OM R	12kΩ 3W J	
CAPACITOR				
⚠ C9001	QCZ9033-472A	C CAP.	4700 p FAC125V K	
⚠ C9002	QCZ9033-472A	C CAP.	4700 p FAC125V K	
⚠ C9003	QFZ9035-474M	MM CAP.	0.47 μ FAC125V M	
⚠ C9004	QFZ9035-474M	MM CAP.	0.47 μ FAC125V M	
⚠ C9005	QCZ9033-472A	C CAP.	4700 p FAC125V K	
⚠ C9006	QCZ9033-472A	C CAP.	4700 p FAC125V K	
⚠ C9007	QCZ9033-332A	C CAP.	3300 p FAC125V K	
⚠ C9009	QCZ9033-332A	C CAP.	3300 p FAC125V K	
⚠ C9010	QEZ0144-477R	E CAP.	470 μ F 400V M	
C9018	QEHC1HM-106MZ	E CAP.	10 μ F 50V M	
C9019	QFP31HJ-152SZ	PP CAP.	1500 p F 50V J	
C9020	QEHC1HM-105MZ	E CAP.	1 μ F 50V M	
C9021	QFLC1HJ-103MZ	M CAP.	0.01 μ F 50V J	
C9022	QEHC1HM-475MZ	E CAP.	4.7 μ F 50V M	
C9023	QFLC1HK-222MZ	M CAP.	2200 p F 50V K	
C9025	QEHC1EM-107MZ	E CAP.	100 μ F 25V M	
C9026	QFLC1HK-473MZ	M CAP.	0.047 μ F 50V K	
C9027	QEN61HM-105Z	BP E CAP.	1 μ F 50V M	
C9029	QFLC1HK-472MZ	M CAP.	4700 p F 50V K	
C9036	QFLC1HJ-103MZ	M CAP.	0.01 μ F 50V J	
C9038	QEHB1EM-338M	E CAP.	3300 μ F 25V M	
C9039	QEHB1EM-228M	E CAP.	2200 μ F 25V M	
C9046	QEHB2CM-227M	E CAP.	220 μ F 160V M	
C9049-51	QEHB2AM-477M	E CAP.	470 μ F 100V M	
TRANSFORMER				
⚠ T9001	CETS003-001	SWITCH.TRANSF.		
⚠ T9002	CE41856-00A	PULSE TRANSF.		

⚠	Symbol No.	Part No.	Part Name	Description	Local
	C O I L				
	L9901	CELP006-4R7Z	PEAKING COIL	4.7 µH	
	L9902	CJ30030-100	HEATER CHOKE		
	D I O D E				
⚠	D9001	S4VB60-L15	BRIDGE DIODE		
	D9005	RG2A-LFC4	SI.DIODE		
	D9006	FML-G12S	SI.DIODE		
	D9009	1SS133-T2	SI.DIODE		
	D9010	RL4Z-C1	SI.DIODE		
	D9012	EG1Z-T3	SI.DIODE		
	D9013-14	1SS133-T2	SI.DIODE		
	D9016-17	1SS133-T2	SI.DIODE		
	D I O D E				
	D9018-19	RG4C-C1	SI.DIODE		
	D9020	1SS133-T2	SI.DIODE		
	D9021	MA4068(N)C1-T2	ZENER DIODE		
⚠	D9022	MA4068(N)C1-T2	ZENER DIODE		
	D9023	MA4110(M)-T2	ZENER DIODE		
	D9024	RD5.6ES(B2)-T2	ZENER DIODE		
	D9026	RD18ES(B3)-T2	ZENER DIODE		
	D9028	1SS81-T5	SI.DIODE		
	D9032	1SS81-T5	SI.DIODE		
	T R A N S I S T O R				
	Q9001-02	2SC1959(Y)-T	SI.TRANSISTOR		
	Q9003	2SA562TM(Y)-T	SI.TRANSISTOR		
⚠	Q9004	2SK1118	F.E.T.		
	Q9005	2SD1409	SI.TRANSISTOR		
	Q9006	2SC1959(Y)-T	SI.TRANSISTOR		
	Q9008	2SA1370(E)	SI.TRANSISTOR		
	Q9012	2SC1472K(AB)-T	SI TRANSISTOR		
	I C				
⚠	IC9001	FA5301P	I.C(MONO-ANA)		
	O T H E R S				
		CEMG002-001Z	FUSE CLIP		
⚠	F9001	QMF51U1-4R0S	FUSE	4.0A	
⚠	FR9901	QRH127K-R22M	F R	0.22 Ω 1/2W K	
⚠	FR9902	QRH127K-R22M	F R	0.22 Ω 1/2W K	
⚠	FR9903	QRH127K-R22M	F R	0.22 Ω 1/2W K	
	K9902-03	CE41923-001	CORE SLEEVE		
	K9905	CE42050-001Z	CORE		
⚠	LF9001	CE41775-003	LINE FILTER		
⚠	LF9002	CE41775-003	LINE FILTER		
⚠	PC9001	CNY17F-C1	I.C(PH.COUPLER)		
⚠	RY9002	CESK026-001	RELAY		
⚠	SW01	QSP4D21-C06	PUSH SWITCH	POWER	
⚠	TH9001	CEKP009-001	P.THERMISTOR		
⚠	VA9001	ERZ-C10VK621G	VARISTOR		

V.SAW MODULE PW BOARD ASS'Y (FX-M004A)

⚠	Symbol No.	Part No.	Part Name	Description	Local
	O T H E R S				
		FX-M004A	V.SAW MODULE PW		

PACKING



PACKING PARTS LIST

⚠	Ref.No.	Part No.	Part Name	Description	Local
	1	CP11224-009	PACKING CASE		
	2	CP11312-B0A	CUSHION ASSY		
	3	CP30612-003	POLY BAG		
⚠	4	QMP1110-244K	POWER CORD		
	5	QPGA012-03005	POLY BAG		
	6	QPGA025-03505	POLY BAG		
	7	BT-51008-1	WARRANTY CARD		
⚠	8	BM-H1300SU-IBA	INST.BOOK		
	9	BT-20104A	SERVICE INF CARD		

JVC SERVICE & ENGINEERING COMPANY OF AMERICA
DIVISION OF US JVC CORP.

Head office (East Coast)	: 107 Little Falls Road, Fairfield, New Jersey 07004	(201)808-9279
Midwest	: 705 Enterprise St. Aurora, Illinois 60504	(708)851-7855
West Coast	: 5665 Corporate Avenue, Cypress, California 90630	(714)229-8011
Southeast	: 1500 Lakes Parkway, Lawrenceville, Georgia 30243	(404)339-2522
Hawaii	: 2969 Mapunapuna Place, Honolulu, Hawaii 96819	(808)833-5828

JVC CANADA INC.

Head office	: 21 Finchdene Square Scarborough,Ontario M1X 1A7	(416)293-1311
Vancouver	: 13040 Worster Court Richmond B.C. V6V 2B3	(604)270-1311

JVC

Printed in Japan
9501 V.P.
M.HK2 H.N

JVC

SERVICE MANUAL

COLOR VIDEO MONITOR

BM-H1300SU

BASIC CHASSIS
BM

Supplementary

BM-H1300 SU

Since some details of the BM-H1300SU service manual (No.50934, Jan. 1995) were changed, we are informing you of these changes and of the new descriptions.

1.ADDITIONAL ADJUSTMENT

Please add the following steps in the BM-H1300SU service manual.

■ HOW TO CHECK THE HIGH VOLTAGE HOLD DOWN CIRCUIT

1. HIGH VOLTAGE HOLD DOWN CIRCUIT

After repairing of the high voltage hold down circuit shown in Fig.1.
This circuit shall be checked to operate correctly.

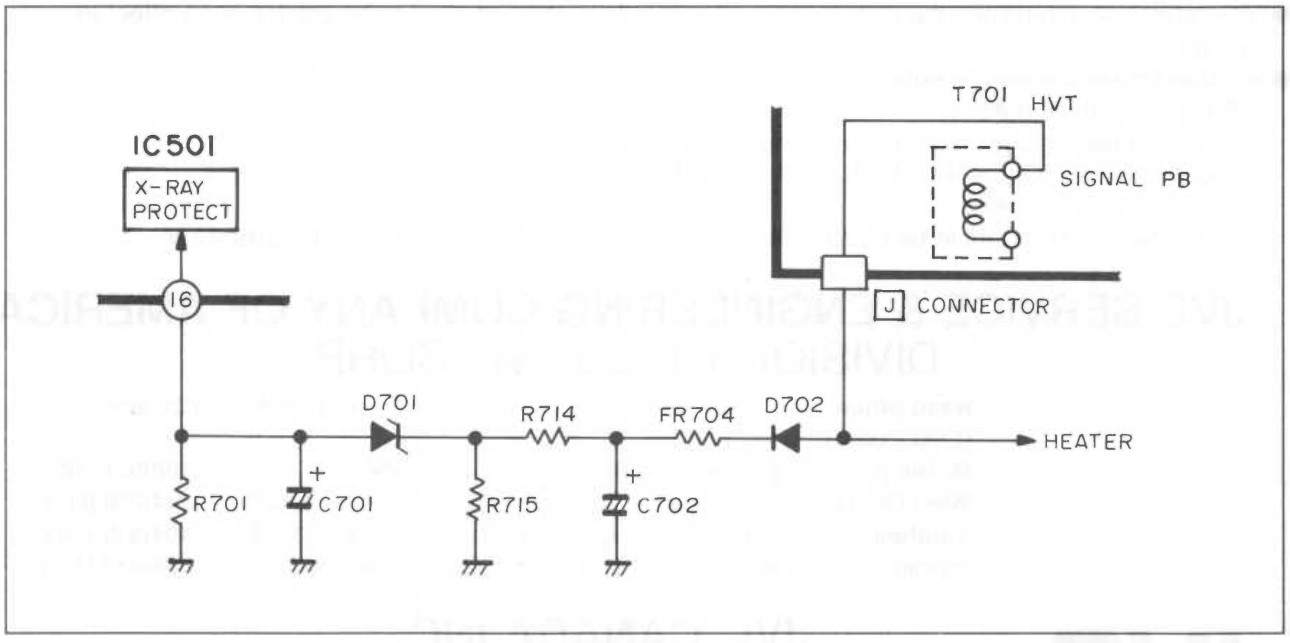


Fig.1

No.50934B
Jan.1996

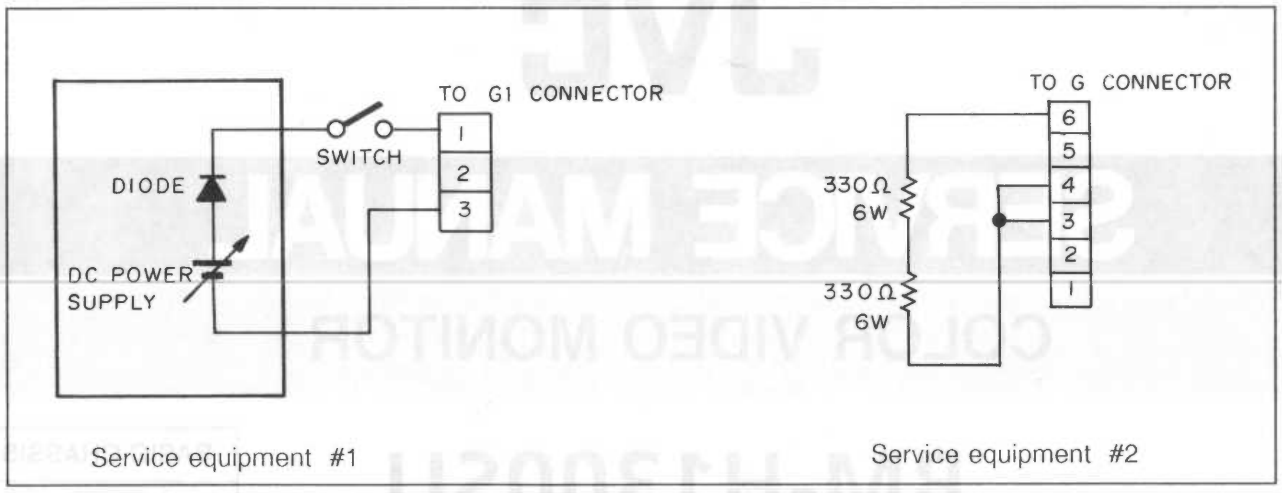


Fig.2

2. CHECKING OF THE HIGH VOLTAGE HOLD DOWN CIRCUIT

1) Make sure that the power switch is at OFF position.
2) Connect the High Voltage Meter to the CRT Anode.
3) Input the NTSC cross-hatch pattern.
4) Turn the power switch ON.
5) Turn the Brightness and Contrast controls to the minimum.
6) Turn the power switch OFF.
7) Remove the G connector in the Deflection PB and connect the self-making service equipment #2.
8) Connect the self-making service equipment #1 to the G1 connector then turn the power switch of the monitor ON.
   Be sure that the switch of the equipment must be OFF position.
9) Set the DC power supply 54V then turn the equipment switch ON.
10) Gradually increase the DC voltage from 54V. Confirm the High Voltage will disappear at the voltage between 25.5~27.3KV.After confirming,turn the power switch of the monitor OFF.
11) Turn the service equipment #1 switch OFF then disconnect the equipment from the G1 connector.
12) Disconnect the service equipment #2 from the G connector then put the G connector back the original condition.

※ Notice

- While checking,sometimes the picture may roll vertically or the picture may be black.It is no effect to check this circuit.
- Self-making service equipments.
  - Service equipment #1 :
    The DC power supply requires to have over 1A DC current.
    Use the diode RG4C / RU30 / RU3AM / RU4AM or the same type.
  - Service equipment #2 :
    The total resistance must be 660Ω . The total rated power (W:wattage) must be over 12W.

JVC SERVICE & ENGINEERING COMPANY OF AMERICA
DIVISION OF US JVC CORP.

Head office (East Coast)	: 107 Little Falls Road, Fairfield, New Jersey 07004	(201)808-9279
Midwest	: 705 Enterprise St. Aurora, Illinois 60504	(708)851-7855
West Coast	: 5665 Corporate Avenue, Cypress, California 90630	(714)229-8011
Southeast	: 1500 Lakes Parkway, Lawrenceville, Georgia 30243	(404)339-2522
Hawaii	: 2969 Mapunapuna Place, Honolulu, Hawaii 96819	(808)833-5828

JVC

JVC CANADA INC.

Head office	: 21 Finchdene Square Scarborough,Ontario M1X 1A7	(416)293-1311
Vancouver	: 13040 Worster Court Richmond B.C. V6V 2B3	(604)270-1311

Printed in Japan
96 01 V.P
K²